

A COLLECTION OF FISHES MADE BY JOSEPH SEED ROBERTS IN
KINGSTON, JAMAICA.

BY DAVID STARR JORDAN AND CLOUDSLEY RUTTER.

Rev. Joseph Seed Roberts, an English missionary resident in Kingston, Jamaica, has been, for the past two years, engaged in the collection of the fishes of that region. Through the generous interest of Mr. Timothy Hopkins, of Menlo Park, California, a large series of these fishes has been sent to the Museum of Leland Stanford, Jr. University. This collection was very carefully made, and reflects great credit on the intelligent interest of Mr. Roberts. The present paper consists of an annotated list of these species, the vernacular names recorded being those in use by the Jamaica fishermen, as given by Mr. Roberts.

The following species are described as new:

Rhinobatus stellio, *Stolephorus robertsi*, *Stolephorus astilbe*, *Siphostoma robertsi*, *Chloroscombus ectenurus*, *Mycteroperca hopkinsi*, *Scarus emblematicus*, *Eupomacentrus dieneæus*, *Chilomycterus antillarum*.

GINGLYMOSTOMATIDÆ.

1. *Ginglymostoma cirratum* (Gmelin). Spotted Nurse Shark.

Squalus cirratus Gmelin, Syst. Nat., I, 1,492, 1788 (American Seas).

Ginglymostoma cirratum, Jordan & Evermann, Fishes of North America, 26.

GALEIDÆ.

2. *Scoliodon terræ-novæ* (Richardson). Tiger Shark.

Squalus (Carcharias) terræ-novæ Richardson, Fauna Bor. Amer., III, 289, 1836.

Scoliodon terræ-novæ, Jordan & Evermann, Fishes of North America, 43.

SPHYRNIDÆ.

3. *Sphyrna zygaena* (Linnaeus).

Squalus zygaena Linnaeus, Syst. Nat., Ed. X, 234, 1758 (Europe, America).

Sphyrna zygaena, Jordan & Evermann, Fishes of North America, 45.

RHINOBATIDÆ.

4. *Rhinobatus stellio* Jordan & Rutter, new species.

Disk triangular, its greatest width a little less than half the distance from snout to dorsal, and equal to distance from snout to a line connecting points of greatest width. Sides of disk straight, tip of snout rounded, posterior point of pectoral more broadly rounded

than snout. Length of snout equal to, or a little less than, half greatest width of disk, equal to distance between outer points of anterior gill-openings; interorbital width 4 to $4\frac{2}{3}$ in snout, a little less than length of eyes and spiracle, but about equal to length of nostril; internasal width equal to orbit; spiracle one-third length of eye, a prominent curved papilla and a slight ridge in its posterior side. Anterior nasal valve with a long slender flap extending across the nostril; three broad flaps on posterior side. Rostral ridges separate for their entire length, width between them at base equal to width of spiracle. Mouth nearly straight, its width $2\frac{3}{4}$ in its distance from snout and equal to distance between inner folds on posterior side of spiracle. Eye $4\frac{1}{2}$ to $5\frac{1}{2}$ in snout. Width of body at axil of pectorals $1\frac{1}{2}$ in snout. Dorsal fins about equal in size and shape, the distance between them $2\frac{1}{2}$ times base of first, the distance between the origins of the two fins equal to snout and about equal to distance from axil of pectoral to origin of first dorsal. Sides of tail with a conspicuous fold. Skin above with a fine uniform shagreen, nearly smooth below except near margins of the disk. A series of very small spines above eye and spiracle, one or two minute spines on shoulder girdle; the largest spines of body situated along median line of back, extending beyond first dorsal; no spine on snout, but in two of the three specimens there is a pair of minute spineless plates near its tip. Color: dusky brown above, about seven faint dusky bars on the side of the tail behind first dorsal, uniform pale below; large translucent areas on each side of the snout. Back with numerous small light spots, much smaller than pupil, arranged symmetrically but not in the same pattern on the three type specimens; two or three pairs between eyes, a few pairs behind eyes near median line, some below eye, where they approach nearest the margin of disk, usually one or two on median line, sometimes two are confluent, about 40 or 45 pairs in all. Axil of pectoral in one specimen with a dusky blotch on upper side.

This species is most nearly related to *Rhinobatus glaucostigma* of the Pacific coast, differing in having a narrow interorbital, narrower body behind disk, and in the very different color.

The description is based on three specimens, each about 20 inches long.

NARCOBATIDÆ.

5. *Narcine brasiliensis* (Olfers). Trembler.

Torpedo brasiliensis Olfers, Torpedo, 19, 1831 (Brazil).

Narcine brasiliensis, Jordan & Evermann, Fishes of North America, 77.

DASYATIDÆ.

6. *Urolophus jamaicensis* (Cuvier). Maid.

Raja jamaicensis Cuvier, Règne Animal, II, 137, 1817 (Jamaica).

Urolophus jamaicensis, Jordan & Evermann, Fishes of North America, 80.

Three specimens about 9 in. long. Asperities confined to middle of disk, a few along upper edge of caudal fin.

7. *Dasyatis hastata* (De Kay). Kit.

Trygon hastata De Kay, N. Y. Fauna: Fishes, 373, pl. 65, fig. 214, ♀, 1842, (Rhode Island).

Dasyatis hastata, Jordan & Evermann, Fishes of North America, 83.

The collection contains also the tail of another species of *Dasyatis* which we cannot identify.

MYLIOBATIDÆ.

8. *Aetobatus narinari* (Euphrasen). Whippley.

Raia narinari Euphrasen, Vet. Ak. Nya Handl., 1790, XI, 217 (Brazil).

Actobatus narinari, Jordan & Evermann, Fishes of North America, 88.

ANGUILLIDÆ.

9. *Anguilla chrysypa* Rafinesque.

Anguilla chrysypa Rafinesque, Amer. Month. Mag. & Crit. Rev., 1817, 120 (Long Island); Jordan & Evermann, Fishes of North America, 348.

MURÆNESOCIDÆ.

10. *Murænesox savanna* (Cuvier).

Muræna savanna Cuvier, Règne Animal, Ed. 2, Vol. 2, 350, 1829 (Martinique).

Murænesox savanna, Jordan & Evermann, Fishes of North America, 360.

OPHICHTHYIDÆ.

12. *Ophichthus gomesii* (Castelnau). Sea Eel; Whip Snake Eel.

Ophisurus gomesii Castelnau, Anim. Amér. Sud., 84, fig. 2, 1855 (Rio Janeiro).

Ophichthus gomesii, Jordan & Evermann, Fishes of North America, 384.

MURÆENIDÆ.

13. *Lycodontis moringa* (Cuvier).

Muræna moringa Cuvier, Règne Animal, ed. II, 1829 (Bahamas, after Catesby).

Lycondontis moringa, Jordan & Evermann, Fishes of North America, 395.

The dark brown blotches nearly everywhere confluent and marked with small black dots; the white ground appearing as more or less disconnected reticulations, merely small blotches on tail, but confluent on lower jaw and throat where the brown spots are much smaller than the interspaces; edge of dorsal and anal white poste-

riorly; narrow black lines radiating forward from gill-opening and backward from throat; mouth inside pale above, spotted below anteriorly, black posteriorly; pores of lower jaw in white blotches.

14. *Lycodontis funebris* (Ranzani).

Gymnothorax funebris Ranzani, Nov. Comm. Ac. Sc. Inst. Bonon., IV, 76, 1840 (Brazil).

Lycodontis funebris, Jordan & Evermann, Fishes of North America, 396.

According to Mr. Roberts, the large specimen here noted was "bronze green" in life.

15. *Lycodontis ocellatus* (Agassiz). Murray Eel.

Gymnothorax ocellatus Agassiz, Pisc. Brasil., 91, pl. 506, 1828 (Brazil).

Lycodontis ocellatus, Jordan & Evermann, Fishes of North America, 399.

ELOPIDÆ.

16. *Tarpon atlanticus* (Cuvier & Valenciennes). Tarpum.

Megalops atlanticus Cuvier & Valenciennes, Hist. Nat. Poiss., XIX, 1846, 398 (Gaudeloupe).

Tarpon atlanticus, Jordan & Evermann, Fishes of North America, 409.

17. *Elops saurus* (Linnaeus). John Mariggle; Bony Fish.

Elops saurus Linnaeus, Syst. Nat. Ed. XII, 518, 1766 (Carolina); Jordan & Evermann, Fishes of North America, 410.

"Sometimes weigh 20 lbs."

ALBULIDÆ.

18. *Albula vulpes* (Linnaeus). Bone Fish.

Esox vulpes Linnaeus, Syst. Nat., Ed. X, 313, 1758 (Bahamas).

Albula vulpes, Jordan & Evermann, Fishes of North America, 411.

CLUPEIDÆ.

19. *Clupanodon pseudohispanicus* (Poey). Bang.

Sardinia pseudohispanica Poey, Memorias, II, 1860, 311.

Clupanodon pseudohispanicus, Jordan & Evermann, Fishes of North America, 423.

20. *Sardinella macrophthalmia* (Ranzani).

Clupea macrophthalmia Ranzani, Nov. Comm. Ac. Sc. Bonon., V, 320, 1842, Brazil.

Sardinella macrophthalmia, Jordan & Evermann, Fishes of North America, 431.

The depth in the specimens here noted varies from 3 to 3 $\frac{1}{4}$.

21. *Opisthonema oglinum* (Le Sueur).

Megalops oglina Le Sueur, Jour. Ac. Nat. Sci. Phila., I, 1817, 359 (Newport, Rhode Island).

Opisthonema oglinum, Jordan & Evermann, Fishes of North America, 432.

Dorsal filament much longer than head, reaching base of caudal.

ENGRAULIDIDÆ.

22. *Stolephorus per fasciatus* (Poey).

Engraulis per fasciatus Poey, Memorias, II, 1860, 313 (Cuba).

Stolephorus per fasciatus, Jordan & Evermann, Fishes of North America, 441.

23. *Stolephorus brownii* (Gmelin). Anchovy Fry.

Atherina brownii Gmelin, Syst. Nat., 1397, 1788 (Jamaica).

Stolephorus brownii, Jordan & Evermann, Fishes of North America, 443.

24. *Stolephorus robertsi* Jordan & Rutter, new species.

Head 3 in length; depth 4; dorsal 14; anal 23; scales about 35; eye 4 in head; pectoral $2\frac{1}{2}$; base of anal $1\frac{2}{3}$; caudal $1\frac{1}{2}$.

Body deep, strongly compressed, abdomen compressed to an edge. Head large, compressed, the snout rather sharp, projecting beyond lower jaw, a little shorter than eye; cheek triangular; opercle large; distance from lower angle of cheek to edge of opercle equal to distance from same point to posterior edge of eye; maxillary short, not reaching root of mandible, its end rounded; lower jaw not reaching beyond anterior edge of orbit; gill-rakers longer than eye, as long as orbit; origin of dorsal midway between base of caudal and front of eye; scales caducous.

Color translucent; head silvery, punctulate above; a silvery lateral band nearly as broad as eye; caudal with dark points, other fins colorless.

This species seems to be related to *Stolephorus opercularis*, but the lateral band is distinct and the opercle is shorter.

One specimen in the collection about 2 inches in length, No. 4,853, L. S. Jr. Univ. Mus.

25. *Stolephorus astilbe* Jordan & Rutter, new species.

Head $4\frac{1}{3}$ in length; depth $4\frac{1}{2}$ to 5; dorsal 12; anal 19 to 22; eye $3\frac{1}{2}$ in head; pectoral $1\frac{4}{5}$; base of anal $1\frac{1}{6}$.

Body rather elongate, not greatly compressed; edge of belly moderately sharp. Head sharp; snout projecting beyond lower jaw, shorter than diameter of eye; tip of lower jaw reaching a little past anterior edge of orbit; maxillary reaching gill opening, its end tapering to a sharp point; eye longer than snout, nearly 2 in post-orbital part of head; gill-rakers two-thirds eye; a slight keel on top of head.

Origin of dorsal midway between base of caudal and eye; scales caducous.

Translucent, head silvery; sides without lateral band, a dark spot on top of head, back with black points.

This species is similar to *Stolephorus brownii*, but more slender, head shorter, and lateral silvery stripe wanting.

Numerous specimens from $1\frac{1}{2}$ to 3 inches in length. No. 4,854, L. S., Jr. Univ. Mus.

26. *Stolephorus productus* (Poey). Grubber Broad Head.

Engraulis productus Poey, Repertorio, I, 380, 1866; Günther, Cat., VII, 338.

Head $3\frac{3}{4}$ in length; depth $3\frac{1}{2}$; dorsal 13; anal 32; scales 35; eye 4 in head; pectoral $1\frac{3}{4}$; caudal 1; base of anal $\frac{1}{6}$ longer than head.

Body moderately elongate, compressed; ventral outline curved more than dorsal; snout short, about half eye; lower jaw pointed, its tip reaching a little past front of eye; maxillary reaching base of lower jaw, about to edge of preopercle, pointed behind; gill-rakers as long as orbit. Pectorals scarcely reaching to ventrals, which reach half way from their base to vent; origin of dorsal midway between base of caudal and middle of eye.

Color silvery, slightly darker above, fins colorless.

This species resembles *Anchovia macrolepidota* of the Pacific. It differs in the more slender body; the curve of ventral outline is not so great, maxillary shorter; median scales in front of dorsal not forming scutes; head shorter; no dark longitudinal stripe. This species is between *Stolephorus* and *Anchovia*, and it makes the distinction of the latter genus very doubtful.

Three specimens, each about 7 inches in length.

27. *Cetengraulis edentulus* (Cuvier). Trapong Fry.

Engraulis edentulus Cuvier, Règne Animal, Ed. 2, II, 323, 1829 (Jamaica, after Sloane).

Cetengraulis edentulus, Jordan & Evermann, Fishes of North America, 450.

SYNODONTIDÆ.

28. *Trachinocephalus myops* (Forster).

Salmo myops Forster MS., Bloch & Schneider, Syst. Ichth., 421, 1801 (St. Helena).

Trachinocephalus myops, Jordan & Evermann, Fishes of North America, 533.

29. *Synodus fætens* (Linnaeus). Macca Robin; Round Robin.

Salmo fætens Linnaeus, Syst. Nat., Ed. XII, 513, 1766 (South Carolina).

Synodus fætens, Jordan & Evermann, Fishes of North America, 533.

Several specimens, $8\frac{1}{2}$ to 16 in. long. Some nearly uniform light olive, others very dark with a series of dark blotches along side.

PÆCILIIDÆ.

30. *Gambusia punctulata* Poey.

Gambusia punctulata Poey, *Memorias*, I, 386, 1855 (Cuba); Jordan & Evermann, *Fishes of North America*, 680.

The anal fin has 9 rays, 10 or 11 counting rudiments, the oblique bar under the eye is indistinct in some specimens and wanting in others.

ESOCIDÆ.

31. *Tylosurus raphidoma* (Ranzani). Guard Fish.

Belone raphidoma Ranzani, *Nov. Comm. Ac. Nat. Sci. Inst. Bonon.*, V, 1842, 359, pl. 37, fig. 1 (Brazil).

Tylosurus raphidoma, Jordan & Evermann, *Fishes of North America*, 716.

HEMIRAMPHIDÆ.

32. *Hyporhamphus unifasciatus* (Ranzani). Balahoo Piper; Half Beak.

Hemirhamphus unifasciatus Ranzani, *Nov. Comm. Ac. Sci. Bonon.*, V, 1842, 326 (Brazil).

Hyporhamphus unifasciatus, Jordan & Evermann, *Fishes of North America*, 720.

Tip of lower jaw scarlet.

33. *Hemiramphus brasiliensis* (Linnaeus).

Esox brasiliensis Linnaeus, *Syst. Nat.*, Ed. X, 314, 1758 (Jamaica).

Hemiramphus brasiliensis, Jordan & Evermann, *Fishes of North America*, 723.

AULOSTOMIDÆ.

34. *Aulostomus maculatus* Valenciennes.

Aulostomus maculatus Valenciennes, in Cuvier, *Illustr. Poissons*, pl. 92, fig. 2, about 1845; Jordan & Evermann, *Fishes of North America*, 754.

SYNGNATHIDÆ.

35. *Siphostoma rousseau* (Kaup).

Syngnathus rousseau Kaup, *Lophobranchs*, 40, 1856 (Martinique).

Siphostoma rousseau, Jordan & Evermann, *Fishes of North America*, 767.

36. *Siphostoma robertsi* Jordan & Rutter, new species.

Head $7\frac{1}{2}$ in length; depth $2\frac{4}{5}$ in head; eye $5\frac{2}{3}$ in head; dorsal 20, on 0 + 4 rings; segments 17 + 32. Snout $2\frac{1}{5}$ in head, with a slight keel; a slight keel on top of head, another above opercle, and one on anterior side of opercle, but not reaching posterior edge; shields without spines; lateral keel ending on last body segment; ventral keel on next to last; upper body keel extending nearly to end of dorsal fin, upper caudal beginning below it on first caudal segment; all ridges of body very prominent, the tail with four plane ridges; caudal pouch 3 in total length. Color mottled brown, paler below,

the membrane connecting the segments pale bluish, forming cross stripes which are especially marked on the egg pouch; prominent pale cross bars on lower side of head; dorsal colorless, except that the base is finely dusted with brown; caudal thickly dusted with brown, except near base.

This species is most closely related to *Siphostoma jonesi*, differing in having a shorter dorsal with more rays, and in the lateral keel ending distinct from lower caudal keel.

One specimen, $4\frac{1}{2}$ long. No. 4,988, L. S. Jr. Univ. Mus.

37. Hippocampus punctulatus Guichenot. Sea Horse.

Hippocampus punctulatus Guichenot in Sagra, Cuba Poiss., 174, pl. 5, fig. 2, 1850 (Cuba); Jordan & Evermann, Fishes of North America, 778.

ATHERINIDÆ.

38. Atherina laticeps Poey.

Atherina laticeps Poey, Memorias, II, 265, 1861 (Havana).

Atherina laticeps, Jordan & Evermann, Fishes of North America, 790.

MUGILIDÆ.

39. Mugil curema Cuvier & Valenciennes. Red and Black Eye Mullet.

Mugil curema Cuvier & Valenciennes, Hist. Nat. Poiss., XI, 87, 1836 (Brazil; Martinique; Cuba); Jordan & Evermann, Fishes of North America, 813.

Very dark above, becoming silvery below; lines along rows of scales show in reflected light; dorsal and caudal very heavily punctate, almost black at tip.

40. Agonostomus monticola (Bancroft).

Mugil monticola Bancroft, in Griffith's Edition, Cuvier's Animal Kingdom, Fishes, 367, pl. 36, 1836 (Jamaica).

Agonostomus monticola, Jordan & Evermann, Fishes of North America, 819

41. Sphyræna barracuda (Walbaum). Short Barracuda.

Esox barracuda Walbaum, Artedi Piscium, III, 1792, 94, after Barracuda of Catesby.

Sphyræna picuda, Jordan & Evermann, Fishes of North America, 823.

The specific name *barracuda*, first given in binomial form by Walbaum, has priority over *picuda*.

42. Sphyræna guachancho Cuvier & Valenciennes. Long Barracuda.

Sphyræna guachancho Cuvier & Valenciennes, III, 342, 1829 (Havana); Jordan & Evermann, Fishes of North America, 824.

POLYNEMIDÆ.

43. Polydactylus virginicus (Linnaeus). "Cat Fish."

Polynemus virginicus Linnaeus, Syst. Nat., Ed. X, 317, 1758 (America).

Polydactylus virginicus, Jordan & Evermann, Fishes of North America, 829.

HOLOCENTRIDÆ.

44. *Holocentrus ascensionis* (Osbeck). Welshman.

Perca ascensionis Osbeck, Iter Chin., 388, 1771, Ascension Island.

Holocentrus ascensionis, Jordan & Evermann, Fishes of North America, 848.

45. *Holocentrus marianus* Cuvier & Valenciennes.

Holocentrum marianum Cuvier & Valenciennes, III, 219, 1829 (Martinique)

Holocentrus marianus, Jordan & Evermann, Fishes of North America, 852.

A single specimen 6 in. long. Head $2\frac{3}{8}$, depth 3 in length; eye $2\frac{1}{2}$ in head; D. XI, 13; A. IV, 9; scales 4-45-7. Dorsal outline much more curved than ventral; mouth low, but little oblique, the lower jaw projecting and entering upper profile; maxillary to below middle of eye; eye large, lower margin of orbit cut by a line connecting tip of snout and upper base of pectoral; angle of opercle high, higher than top of pupil, with three sharp teeth, small teeth along the margin next the subopercle; subopercle long and narrow, dentate near upper end; preopercle very finely serrate, with a strong spine at angle; a single row of scales on opercle along margin of preopercle; suborbital bones very narrow, finely serrate; premaxillary groove on top of head as long as eye; length of pectoral equals head behind middle of eye; spinous dorsal depressible into a groove, highest (anterior) rays of soft dorsal equal to ventrals, longer than soft rays of anal; third anal spine very long and heavy, as long as pectorals; caudal forked almost to base, the lobes equal, as long as pectorals. Each row of scales with a red band, yellow lines between the rows; fins all yellowish.

This is a strongly marked species, very different from *Holocentrus ascensionis*, perhaps the type of a distinct genus, characterized by the large mouth and projecting chin.

MULLIDÆ.

46. *Upeneus maculatus* (Bloch).

Mullus maculatus Bloch, Ichthyologia, pl. 348, fig. 1, 1793 (Brazil).

Upeneus maculatus, Jordan & Evermann, Fishes of North America, 858.

47. *Upeneus martinicus* Cuvier & Valenciennes. King Mullet.

Upeneus martinicus Cuvier & Valenciennes, Hist. Nat. Poiss., III, 483, 1829 (Martinique); Jordan & Evermann, Fishes of North America, 859.

SCOMBRIDÆ.

48. *Scomberomorus maculatus* (Mitchill). Spanish Mackerel.

Scomber maculatus Mitchill, Trans. Lit. & Phil. Soc. N. Y., I, 1815, 426 (New York).

Scomberomorus maculatus, Jordan & Evermann, Fishes of North America, 874.

49. *Scomberomorus regalis* (Bloch).

Scomber regalis Bloch, Ichthyologia, pl. 333, 1795 (Martinique).

Scomberomorus regalis, Jordan & Evermann, Fishes of North America, 875.

50. *Scomberomorus cavalla* (Cuvier). King Fish.

Cymbium cavalla Cuvier, Règne Animal, Ed. 2, II, 1829 (Brazil).

Scomberomorus cavalla, Jordan & Evermann, Fishes of North America, 875.

TRICHIURIDÆ.

51. *Trichiurus lepturus* Linnaeus. Cutlass Fish.

Trichiurus lepturus Linnaeus, Syst. Nat., Ed. X, 246, 1758 (America); Jordan & Evermann, Fishes of North America, 889.

CARANGIDÆ.

52. *Oligoplites saurus* (Bloch & Schneider). Leather Coat.

Scomber saurus Bloch & Schneider, Syst. Ich., 321, 1801 (Jamaica).

Oligoplites saurus, Jordan & Evermann, Fishes of North America, 898.

53. *Decapterus sanctæ-helenæ* (Cuvier & Valenciennes).

Caranx sanctæ-helenæ Cuvier & Valenciennes, IX, 37, 1833 (St. Helena).

Decapterus sanctæ-helenæ, Jordan & Evermann, Fishes of North America, 908.

54. *Trachurops crumenophthalmus* (Bloch). Goggle Eye Jack.

Scomber crumenophthalmus Bloch., Ichth., pl. 343, 1793 (Acará, Guinea).

Trachurops crumenophthalmus, Jordan & Evermann, Fishes of North America, 911.

55. *Caranx ruber* (Bloch). Green Jack.

Scomber ruber Bloch, Ichthyologia, pl. 342, 1793 (St. Croix).

Caranx ruber, Jordan & Evermann, Fishes of North America, 919.

The dark bar on lower lobe of caudal not discernible in young 3 in. long.

56. *Caranx hippos* (Linnaeus). Crevally Jack.

Scomber hippos Linnaeus, Syst. Nat., Ed. X, 494, 1766 (Charleston, South Carolina).

Caranx hippos, Jordan & Evermann, Fishes of North America, 920.

57. *Caranx pisquetus* Cuvier & Valenciennes. Green Jack.

Caranx pisquetus Cuvier & Valenciennes, IX, 97, 1833 (San Domingo); Gill, Proc. Acad. Nat. Sci. Phila., 1862, 432; Poey, Synopsis, 336, 1868.

The West Indian specimens called *Caranx pisquetus* seem to differ somewhat from the common northern form, *Caranx crysos*, and may provisionally be regarded as distinct. The pectorals are longer, much longer than the head, and reach well past front of anal. These approach the Pacific species, *Caranx caballus*, in these regards. In fact, we cannot separate *caballus* from *pisquetus*. Further comparison is necessary to show whether *crysos*, *pisquetus* and *caballus* constitute one species or two or three.

58. *Caranx latus* Agassiz. Horse Eye Jack.

Caranx latus Agassiz, Pisc. Bras., 105, 1829 (Brazil); Jordan & Evermann, Fishes of North America, 923.

In a specimen 20 in. long the opercular spot is nearly obsolete, and the adipose eyelid is highly developed on hinder side of eye.

59. *Alectis ciliaris* (Bloch).

Zeus ciliaris Bloch, Ichthyol., VI, 27, pl. 191, 1788 (East Indies).

Alectis ciliaris, Jordan & Evermann, Fishes of North America, 931.

60. *Vomer spixi* (Swainson).

Platysomus spixii Swainson, Class'n Fishes, 250, 406, 1839 (Brazil, after Agassiz and Spix). *Vomer gabonensis* Guichenot, Ann. Soc. Maine et Loire, 1865, 42 (Gaboon).

Head $2\frac{7}{8}$; depth $1\frac{3}{5}$; dorsal VI-I, 22; anal I, 18; eye $3\frac{2}{3}$ in head; maxillary $2\frac{1}{3}$; snout $1\frac{1}{3}$; caudal 1.

Body very deep, in form much like *Selene ærstedii*, profile very steep almost vertical, snout slightly protruding, mouth oblique, maxillary reaching to the vertical from front of eye, gill rakers 7+27, the longest little more than half eye.

Lateral line strongly arched in front, the arch $1\frac{1}{4}$ the straight part; plates of lateral line little differentiated; pectoral falcate, as long or slightly longer than head; ventrals small, under base of pectorals.

Color bluish above, sides silvery, fins except ventrals and anal dusky. Here described from specimens from Jamaica about 10 inches in length.

These specimens are evidently different from the northern *Vomer setipinnis* (= *Vomer browni*), the body in specimens of the same length being much deeper. It corresponds to the figure given by Agassiz of *Vomer browni*, this figure being the basis of *spixii* of Swainson. Probably all West Indian records of *Vomer setipinnis* belong to *Vomer spixi*.

61. *Selene vomer* (Linnaeus).

Zeus vomer Linnaeus, Syst. Nat., X, 266, 1753 (America).

Selene vomer, Jordan & Evermann, Fishes of North America, 939.

62. *Chloroscombrus ectenurus* Jordan & Osgood, Ms. New species.

Chloroscombrus chrysurus of authors, not of Linnaeus.

Micropteryx cosmopolita Agassiz, not *Seriola cosmopolita* Cuvier, who bases the name on *Scomber chloris* Bloch, an African species from Acará, Guinea, Coll. Dr. Isert.

Two specimens $13\frac{1}{2}$ in. long.

Types No. 4,863, L. S. Jr. U. Museum, two specimens $13\frac{1}{2}$ inches long. Jamaica, J. S. Roberts.

Head $3\frac{7}{8}$; depth $2\frac{3}{5}$; D. VIII-I, 27; A. II-I-26. Snout slightly shorter than eye, which is $3\frac{1}{2}$ in head. Chord of curved part of lateral line $1\frac{3}{8}$ in straight part. Depth of caudal peduncle 2 in its length, measuring from the base of the last dorsal ray to the base of the first caudal ray. Pectorals long and falcate, 3 in length. Ventrals short, $2\frac{1}{2}$ in head, extending beyond the vent which is situated in a groove in which these fins fit. Depth of head equal to or slightly less than its length. The maxillary reaches the anterior edge of the eye, and is contained $2\frac{3}{8}$ times in the head.

Lateral line unarmed. Curve of ventral outline very slightly more pronounced than that of the dorsal. Dorsal and anal fin sheaths well developed. Tips of upper spines and rays dusky. A black blotch at base of upper rays of caudal, and a black axillary and opercular spot.

This is the common West Indian species of *Chloroscombrus*. The types are two specimens about 10 inches in length, collected at Jamaica by J. S. Roberts. Co-types are five specimens (L. S. Jr. Museum No. 406) collected by Dr. Jordan at Havana, Cuba.

The species is closely related to *Chloroscombrus chrysurus*, the common species of the South Atlantic and Gulf States, which it evidently represents in the West Indies. The species *chrysurus*, is deeper in every way, having a deeper body, a deeper head, and a deeper caudal peduncle. In *chrysurus*, also the eye is larger, the mouth more nearly vertical, and the arch of the lateral line higher.

When specimens of equal size from Florida and Havana are compared the characters are very evident. In two specimens each $7\frac{1}{2}$ inches in length, from Havana and Florida respectively, the depth of the body of the one is contained $1\frac{1}{4}$ times in that of the other, the depth of the head $1\frac{1}{2}$, the depth of the caudal peduncle $1\frac{1}{2}$, and the length of the eye $1\frac{1}{2}$.

The names *chrysurus* (South Carolina), *latus* (Carolina) and *caribæus* (Texas) evidently all belong to the species of the United States coast.

The type of *chloris* came from Acará in Guinea, and *cosmopolita* of Cuvier was originally as a mere substitute for *coloris*. Until the African species can be examined, it is better not to use the name for either of the American forms. Probably *Chloroscombrus chloris*, when studied, will be found distinct from either. If not, the name would take the place of *ectenurus*.

63. *Trachinotus glaucus* (Bloch).*Chatodon glaucus* Bloch, Ichthyologia, pl. 210, 1787 (Martinique).*Trachinotus glaucus*, Jordan & Evermann, Fishes of North America, 940.64. *Trachinotus rhomboides* (Bloch).*Chatodon rhomboides* Bloch, pl. 209, 1787 (Martinique).

This West Indian species is apparently different from the northern *Trachinotus falcatus* with which it has been confounded. In specimens of the same size the vertical fins are much higher in the West Indian species.

Head $3\frac{1}{6}$; depth $1\frac{3}{4}$ in length; eye $3\frac{1}{2}$ in head; dorsal VI-I, 20; anal II-I, 18.

Back much elevated, but not angulated at origin of soft dorsal; end of snout not vertical, curved; head slightly concave at occiput. Maxillary to below anterior margin of pupil; eye on level of lower edge of premaxillary and axil of pectoral. Origin of soft dorsal behind tip of pectoral, its lobe much elongated, extending to middle of caudal; lobe of anal reaching to below base of caudal; caudal lobes equal, $2\frac{1}{2}$ in body; pectoral rounded, $1\frac{1}{2}$ in head; ventrals $2\frac{3}{4}$ in head. Scales minute, large posteriorly near lateral line. Pale olive above, becoming silvery on belly, lobes of vertical fins dusky.

65. *Trachinotus carolinus* (Linnaeus). Cobble Fish.*Gasterosteus carolinus* Linnaeus, Syst. Nat., Ed. XII, 490, 1766 (Carolina).*Trachinotus carolinus*, Jordan & Evermann, Fishes of North America, 944.

RACHYCENTRIDÆ.

66. *Rachycentron canadum* (Linnaeus). Cobio.*Gasterosteus canadus* Linnaeus, Syst. Nat., Ed. XII, 491, 1866, Canada.*Rachycentron canadum*, Jordan & Evermann, Fishes of North America, 948.

STROMATEIDÆ.

67. *Rhombus paru* (Linnaeus). Poppy Fish.*Stromateus paru* Linnaeus, Syst. Nat., Ed. X, 248, 1758 (Jamaica, based on Sloane).*Rhombus paru*, Jordan & Evermann, Fishes of North America, 965.

The specimens here noted have been compared with specimens found in the Washington market, with which they agree in all respects except in depth. The southern specimens have the depth of $1\frac{3}{4}$, the northern $1\frac{3}{8}$. If the two are really different, as is probable, the northern species will stand as *Rhombus alepidotus*.

CENTROPOMIDÆ.

68. *Centropomus undecimalis* (Bloch). Sea Snook.*Sciæna undecimalis* Bloch, Ichthyol., VI, 60, pl. 303, 1792.*Centropomus undecimalis*, Jordan & Evermann, Fishes of North America, 1,118.

SERRANIDÆ.

69. *Petrometopon cruentatus* (Lacépède). Rock Hind; Mahiner.

Sporus cruentatus Lacépède, Hist. Nat. Pois., IV, 157, pl. 4, fig. 1, 1803 (Martinique).

Petrometopon cruentatus, Jordan & Evermann, Fishes of North America, 1141.

Two specimens. One has dark brown reticulations on head enclosing hexagonal pale brown areas, and the spots on each side of the spinous dorsal are black, those on one side of the soft dorsal are silvery white, on the other black. In the other smaller specimen the reticulations of the head are pale bluish, and sharply define the hexagonal pale brown areas; reticulations are also more or less distinct on the soft rays of fins; the spots on each side of dorsal are all silvery white, except that two are partly black. Edges of all fins dark. The larger and darker specimen has a proportionately longer maxillary, the maxillary in two specimens being $1\frac{5}{8}$ and 2 in head.

70. *Bodianus fulvus* (Linnaeus). Lemon Yellow Butter Fish.

Labrus fulvus Linnaeus, Syst. Nat., Ed. X, 287, 1758 (Bahamas).

Bodianus fulvus, Jordan & Evermann, Fishes of North America, 1,144.

Lemon yellow, becoming orange on upper part of side and base of dorsal, two round black spots on upper side of caudal, a few scattering small black spots on head and anterior side of body, none on end of lower jaw.

70a. *Bodianus fulvus ruber* (Bloch & Schneider). Rock Hind.

Gymnocephalus ruber Bloch & Schneider, Syst. Ichth., 346, pl. 67, 1801.

Bodianus fulvus ruber, Jordan & Evermann, Fishes of North America, 1,145.

70b. *Bodianus fulvus punctatus* (Linnaeus).

Perca punctata Linnaeus, Syst. Nat., Ed. X, 291, 1758 (Bahamas).

Bodianus fulvus punctatus, Jordan & Evermann, Fishes of North America, 1,146.

71. *Epinephelus adscensionis* (Osbeck). Rock Hind.

Trachinus adscensionis Osbeck, Iter Chin., etc., 1757 (Ascension Island).

Epinephelus adscensionis, Jordan & Evermann, Fishes of North America, 1,152.

72. *Epinephelus striatus* (Bloch). Red Grouper; Rock Fish.

Anthias striatus Bloch, Ichthyologia, IX, 109, pl. 324, 1792 (Martinique).

Epinephelus striatus, Jordan & Evermann, Fishes of North America, 1,157.

The canines are very small; edge of preopercle with very minute serræ. The vertical cross-bars nearly or quite obsolete on specimens 17 in. long.

73. *Epinephelus maculosus* (Cuvier & Valenciennes). Rock Hind.

Serranus maculosus Cuvier & Valenciennes, II, 332, 1828.

Epinephelus maculosus, Jordan & Evermann, Fishes of North America, 1,158.

74. *Epinephelus morio* (Cuvier & Valenciennes).

Serranus morio Cuvier & Valenciennes, II, 285, 1828 (New York and San Domingo).

Epinephelus morio, Jordan & Evermann, Fishes of North America, 1,160.

75. *Promicrops guttatus* (Linnaeus).

Perca guttata Linnaeus, Syst. Nat., Ed. X, 292, 1758 (Brazil).

Promicrops guttatus, Jordan & Evermann, Fishes of North America, 1,162.

76. *Mycteroperca venenosa apua* (Bloch).

Bodianus apua Bloch, Ichth., VII, 37, pl. 229, 1790 (Brazil).

Mycteroperca venenosa apua, Jordan & Evermann, Fishes of North America, 1,173.

77. *Mycteroperca bonaci* (Poey). Marbled Rock Fish.

Serranus bonaci Poey, Memorias, II, 129, 1860 (Cuba).

Mycteroperca bonaci, Jordan & Evermann, Fishes of North America, 1,174.

Two specimens 10 in. long; color markings very much faded. Two or three rows of alternating bronze spots from below eye toward opercle; the reticulations on body nearly obliterated; pectorals slightly dusky, the other fins almost wholly black, a subterminal streak of light olive across caudal, and a similar one along dorsal and anal, vertical fins narrowly edged with pale.

78. *Mycteroperca tigris* (Cuvier & Valenciennes). Rock Fish.

Serranus tigris Cuvier & Valenciennes, IX, 440, 1833 (San Domingo).

Mycteroperca tigris, Jordan & Evermann, Fishes of North America, 1,187.

79. *Mycteroperca hopkinsi* Jordan & Rutter. New Species.

Allied to *Mycteroperca calliura*, differing in having fewer gill-rakers, more slender body, smaller scales, and a less lunate caudal.

Head $2\frac{2}{3}$; depth $4\frac{1}{2}$; D. XI, 15; A. III, 11; scales about 125; eye 6 in head, $1\frac{1}{2}$ in snout.

Body long, not much compressed; angle of preopercle sharply serrate; gill-rakers 6+9, counting rudiments; nostrils close together, the posterior larger, with a horizontal septum across base; profile concave above nostrils; maxillary nearly to posterior margin of eye, $2\frac{1}{8}$ in head; lower jaw projecting; two anterior canines of upper jaw very strong; third and fourth dorsal spines longest; posterior portion of anal truncate; caudal concave. Pectorals 2, ventrals $2\frac{1}{2}$, and caudal $1\frac{1}{2}$ in head. Color of alcoholic specimen nearly uniform brownish, side of jaws paler; soft dorsal, anal, ventrals and caudal, with a narrow pale edging, these fins otherwise brownish-olive, with a subterminal band of black; pectorals pale, darker in middle.

One specimen, about 6 inches long, numbered 5,073, L. S. Jr. Univ. Museum.

It is named for Mr. Timothy Hopkins.

80. Hypoplectrus unicolor (Walbaum).

Perca unicolor Walbaum, Artedi Piscium, III, 352, 1792 (locality unknown).

Hypoplectrus unicolor, Jordan & Evermann, Fishes of North America, 1, 190 and 1, 192.

80a. Hypoplectrus unicolor puella (Cuvier & Valenciennes).

Plectropoma puella Cuvier & Valenciennes, Hist. Nat. Poiss., II, 405, pl. 37, 1828 (Martinique).

Hypoplectrus unicolor puella, Jordan & Evermann, Fishes of North America, 1, 192.

80b. Hypoplectrus unicolor aberrans (Poey).

Hypoplectrus aberrans Poey, Synopsis, 291, 1868 (Havana).

Hypoplectrus unicolor aberrans, Jordan & Evermann, Fishes of North America, 1, 193.

Soft dorsal finely specked with brown (in spirits); body cloudy yellowish brown; the scales behind and above pectoral each with a pearly dot; a large black spot on caudal peduncle; black spot in front of eye, surrounded by sky blue, a blue stripe across cheek and around eye, one or two vertical blue stripes behind eye, and several on top of head.

81. Dules dispilurus (Günther). Grassy Ground Rock Fish.

Centropristis dispilurus Günther, Proc. Zool. Soc. Lond., 1867, 99, (Trinidad).

Dules dispilurus, Jordan & Evermann, Fishes of North America, 1, 219.

Several specimens $3\frac{1}{4}$ in. long, which according to Mr. Roberts is the maximum size. He also states that in life there are "two dorsal and caudal stripes of white and pink, belly white, pectoral deep red." The inner teeth of both jaws are somewhat depressible, and there are 7 branchiostegals in five of the six specimens. The lower (seventh) branchiostegal is rather small and is wanting in one specimen, leaving but six. Apparently the presence of only six branchiostegals cannot distinguish *Dules* from *Prionodes*. The caudal is truncate in *Dules*, lunate in *Prionodes*. This species is evidently distinct from *Dules subligarius* and doubtless from *Dules auriga* also. It may be that *Dules flaviventris* and *brasiliensis* are synonyms of *Dules auriga* rather than of *Dules dispilurus*. In any event we may let the name *dispilurus* stand pending investigation.

82. Rypiticus saponaceus (Bloch & Schneider).

Anthias saponaceus Bloch & Schneider, Syst. Ichth., 310, 1801 (Havana).

Rypiticus saponaceus, Jordan & Evermann, Fishes of North America, 1, 232.

This is a deeper fish than the following, the depth being equal to or greater than the length of head.

83. *Rypticus coriaceus* (Cope). Black Soap Fish.

Eleutheractis coriaceus Cope, Trans. Am. Phil. Soc., 1870, 467 (St. Martins).

Rypticus coriaceus, Jordan & Evermann, Fishes of North America, 1, 233.

Several specimens 5 to 6 in. long. One has three opercular spines. Aside from the number of opercular spines, this species may be distinguished from the preceding by its more slender body, depth $1\frac{1}{5}$ to $1\frac{1}{3}$ in head, and by the less projecting lower jaw.

PRIACANTHIDÆ.**84. *Priacanthus arenatus* Cuvier & Valenciennes.**

Priacanthus arenatus Cuvier & Valenciennes, III, 97, 1829 (Brazil); Jordan & Evermann, Fishes of North America, 1, 237.

85. *Priacanthus cruentatus* (Lacépède).

Labrus cruentatus Lacépède. Hist. Nat. Poiss., III, 522, 1800 (Martinique).

Priacanthus cruentatus, Jordan & Evermann, Fishes of North America, 1, 238.

LUTIANIDÆ.**86. *Neomænis griseus* (Linnaeus).**

Labrus griseus Linnaeus, Syst. Nat., Ed. X, 1758, 283 (after Catesby).

Lutjanus griseus, Jordan & Fesler, Sparoid Fishes, 441.

Apparently none of the American *Lutianinæ*, unless it be *Lutianus viridis*, are congeneric with the East Indian type of *Lutianus*. The naked vertex with a band of scales at the temples is found in the American forms, while in *Lutianus* the top of the head is evenly scaled. There is also considerable difference in the skull in the species compared. For the American forms, typified by *Lutianus griseus*, the name *Neomænis* Girard may be revived.

87. *Neomænis jocu* (Bloch & Schneider).

Anthias jocu Bloch & Schneider, Syst. Ichth., 310, 1801 (Cuba, based on Parra).

Lutjanus jocu, Jordan & Fesler, Sparoid Fishes, 443.

88. *Neomænis apoda* (Walbaum). Mattin Snapper.

Sparis apoda Walbaum, Artedi Piscium, 111, 1792 (after Catesby).

Sparus caxis Bloch & Schneider, Ichthyology, 284, 1810 (Havana, after Parra).

Lutjanus caxis, Jordan & Fesler, Sparoid Fishes, 443.

Nearly uniform gray, more or less dark above, with faint yellow lines on side; body with about six pale cross streaks sometimes very distinct; one or two rows of small dots from below eye forward to edge of preorbital; pectorals pale yellow, ventrals white, caudal and spinous dorsal dusky, soft dorsal and anal pale. Faded specimens may be readily distinguished by the very distinct fleshy fold which fits closely against end of maxillary.

89. *Neomænis buccanella* (Cuvier & Valenciennes). Black Fin Snapper.

Mesoprion buccanella Cuvier & Valenciennes, II, 455, 1828 (Martinique).

Lutjanus buccanella, Jordan & Fesler, Sparoid Fishes, 445.

Nearly uniform crimson, caudal and lower fins tinged with yellow, axil of pectoral jet black.

90. *Neomænis vivanus* (Cuvier & Valenciennes).

Mesoprion vivanus Cuvier & Valenciennes, II, 454, 1828 (Martinique).

Lutjanus vivanus, Jordan & Fesler, Sparoid Fishes, 445.

91. *Neomænis analis* (Cuvier & Valenciennes).

Lutjanus analis Poey, Enumeratio, 29, 1875 (Cuba); Jordan & Fesler, Sparoid Fishes, 1893, 445.

Maxillary hardly reaching eye. Differs from *synagris* in the very weak vomerine teeth, pointed dorsal and anal, and elongate posterior nostril.

92. *Neomænis synagris* (Linnaeus). Red Tail Snapper.

Sparus synagris Linnaeus, Syst. Nat., X, 280, 1758 (after Catesby).

Lutjanus synagris, Jordan & Fesler, Sparoid Fishes, 450.

Seven yellow lines on body, caudal indistinctly edged with black; outer rays, red in one specimen, other fins pale; narrow lines, probably blue in life, extending forward from eye; jaws purplish. Lateral line 50.

93. *Neomænis mahogoni* (Cuvier & Valenciennes).

Mesoprion mahogoni Cuvier & Valenciennes, II, 447, 1828 (Martinique).

Lutjanus mahogoni, Jordan & Fesler, Sparoid Fishes, 451.

94. *Apsilus dentatus* Guichenot.

Apsilus dentatus Guichenot, in Ramon de la Sagra, Hist. Cuba, Poiss., 29, pl. 1, f. 2, 1845, Havana; Jordan & Fesler, Sparoid Fishes, 455.

95. *Ocyurus chrysurus* (Bloch). Yellow Tail.

Sparus chrysurus Bloch, Ichthyologia, taf. 262, 1790 (after Marcgrave).

Ocyurus chrysurus, Jordan & Fesler, Sparoid Fishes, 452.

A stripe of lemon-yellow from eye backward, covering nearly all of caudal peduncle and the whole of caudal fin; two rows of oblong yellow blotches about two-thirds size of eye along lateral line; the scales above and below the lateral line posteriorly more or less strongly tinged with scarlet; many small round dusky spots on upper side of head; pectorals, ventrals and anal colorless.

96. *Rhomboplites aurorubens* (Cuvier & Valenciennes).

Centropristis aurorubens Cuvier & Valenciennes, III, 45 (Brazil; Martinique; San Domingo).

Rhomboplites aurorubens, Jordan & Fesler, Sparoid Fishes, 454.

HÆMULIDÆ.

97. *Hæmulon macrostomum* Günther. Gray Grunt; Yellow Tail.

Hæmulon macrostoma Günther, Cat., I, 308, 1859 (Jamaica); Jordan & Fesler, Sparoid Fishes, 470.

Silvery gray, several dark lines on sides, those from point of opercle and along lateral line most distinct; back on each side of dorsal greenish-yellow, edge of dorsal and caudal tinged with the same color; pectoral pale orange; fins otherwise dusky, the ventrals nearly black.

98. *Hæmulon bonariense* Cuvier & Valenciennes. Black Grunt.

Hæmulon bonariense Cuvier & Valenciennes, Hist. Nat. Poiss., V, 254, 1830 (Buenos Ayres); Jordan & Fesler, Sparoid Fishes, 470.

The two fine specimens correspond to the account given by Jordan & Fesler. The dark stripes on the side are dark bronze-brown in life.

99. *Hæmulon parra* (Desmarest). Black Grunt.

Diabasis parra Desmarest, Prem. Décade Ichthyol., 30, tab., 2, f. 2, 1823 (Havana).

Hæmulon parra, Jordan & Fesler, Sparoid Fishes, 471.

100. *Hæmulon carbonarium* Poey. Caesar Grunt.

Hæmulon carbonarium Poey, Memorias de Cuba, II, 176, 1860 (Cuba); Jordan & Fesler, Sparoid Fishes, 472.

Base of spinous dorsal yellow, fins otherwise very dusky.

101. *Hæmulon melanurum* (Linnaeus). Caesar Grunt.

Perca melanura Linnaeus, Syst. Nat., X, 292, 1858 (based on Catesby's figure; Bahamas).

Hæmulon melanurum, Jordan & Fesler, Sparoid Fishes, 472.

102. *Hæmulon sciurus* (Shaw). Hump Back Grunt.

Sparus sciurus Shaw, General Zoology, IV, pl. 64, 1803 (based on figure and description of *Anthias formosus* Bloch, (Antilles).

Hæmulon sciurus, Jordan & Fesler, Sparoid Fishes, 474.

103. *Hæmulon plumieri* (Lacépède). Red Mouth Grunt.

Labrus plumieri Lacépède, Hist. Nat. Poiss., III, 480, 1802, pl. 2, f. 2 (on a copy of a drawing by Plumier, identified with this species by Cuvier).

Hæmulon plumieri, Jordan & Fesler, Sparoid Fishes, 475.

Stripes of head faintly indicated on anterior part of body.

104. *Hæmulon flavolineatum* (Desmarest). Deep Water Grunt.

Diabasis flavolineatus Desmarest, Prem. Décade Ichth., 1823, 35, pl. 2, f. 1 (Cuba).

Hæmulon flavolineatum, Jordan & Fesler, Sparoid Fishes, 476.

Color as described by Jordan & Fesler, except that the black lines are wanting (size of specimen 7 in.).

105. *Hæmulon album* Cuvier & Valenciennes. White Grunt.

Hæmulon album Cuv. & Val., V, 241, 1830 (St. Thomas); Jordan & Fesler, Sparoid Fishes, 469.

106. *Bathystoma aurolineatum* Cuvier & Valenciennes. Cæsar Grunt.

Hæmulon aurolineatum Cuvier & Valenciennes, V, 237, 1830 (Brazil, San Domingo); Jordan & Fesler, Sparoid Fishes, 486.

A yellow stripe about as wide as a scale from eye to below posterior end of dorsal, another of equal length and width from top of head along side of back; nearly every row of scales with a faint narrow yellow line; end of snout bluish; a dark blotch at base of caudal.

107. *Brachygenys chrysargyreus* (Günther).

Hæmulon chrysargyreum Günther, Cat., I, 314, 1859 (Trinidad); Jordan & Fesler, Sparoid Fishes, 476.

Several specimens very pale in color.

108. *Anisotremus surinamensis* (Bloch).

Lutjanus surinamensis Bloch, Ichth., pl. 253, 1791 (Surinam).

Anisotremus surinamensis, Jordan & Fesler, Sparoid Fishes, 484.

109. *Anisotremus virginicus* (Linnaeus). Pork Bream.

Sparus virginicus Linnaeus, Syst. Nat., X, 281, 1858.

Anisotremus virginicus, Jordan & Fesler, Sparoid Fishes, 486.

Body with alternating blue and golden stripes, which are from one to two times as wide as scale, a golden stripe on base of anal; webs of dorsal and anal golden; a broad black band from nape through eye and across cheek, another from front of dorsal in front of pectoral; pectoral yellow, ventral yellow with dusky punctulations.

110. *Conodon nobilis* (Linnaeus). Sky; Coil Drummer.

Perca nobilis Linnaeus, Syst. Nat., X, 191, 1758 (North America).

Conodon nobilis, Jordan & Fesler, Sparoid Fishes, 488.

111. *Brachydeuterus corvinæformis* (Steindachner).

Hæmulon corvinæforme Steindachner, Ichth. Notizen, VII, 16, 1868 (Santos, Brazil).

Pomadasis corvinæformis, Jordan & Fesler, Sparoid Fishes, 495.

Head 3 to $3\frac{1}{4}$; depth $3\frac{1}{4}$; eye $3\frac{3}{4}$ to 4 in head. D. XII, 15; A. III, 7; scales 6-51-10.

Upper profile regularly arched from snout to tail, the highest point at origin of dorsal, lower profile nearly straight to base of anal. Preorbital slightly less than eye; maxillary not reaching eye, $3\frac{1}{3}$ to $3\frac{2}{3}$ in head; snout $2\frac{4}{5}$ to 3 in head. Anterior nostril oval, twice the size of posterior. Preopercle finely toothed, about 20 teeth on upper limb, increasing slightly in size toward angle. Dorsal notched almost to base, 4th spine longest, $2\frac{1}{8}$ to $2\frac{1}{2}$ in head, longest soft ray

(2nd) equal to or slightly less than longest spine. Pectoral pointed, $1\frac{1}{4}$ to $1\frac{3}{5}$ in head. Ventral broad, the margin nearly straight, inner ray $1\frac{1}{4}$ in 2nd which is 2 in head; first ray branched once, slightly filamentous, other rays much branched. Second and third anal spines about equal, 3 to $3\frac{3}{4}$ in head, relatively larger in smaller specimens, the second stouter; first soft ray $2\frac{1}{2}$ in head; margin of anal slightly concave, the last ray shorter than second spine. Upper lobe of caudal longer, more noticeable in the smaller specimens, $1\frac{1}{3}$ to $1\frac{1}{2}$ in head, middle rays $1\frac{3}{5}$ in upper. Pectoral scaly at base only, other fins, except spinous dorsal, more or less completely scaled, a narrow sheath of scales on sides of dorsal and anal, supplementary scales slightly developed in axil of ventrals. Least depth of caudal peduncle $1\frac{1}{2}$ to $1\frac{3}{5}$ in the length from below end of dorsal, its length being equal to middle caudal rays. Lateral line and rows of scales above it parallel with back, scales below lateral line in horizontal rows. Color in alcohol: Dark olive above, lower sides more or less silvery, the larger specimens much the lighter; a dark line along each row of scales below lateral line, these rather indistinct in larger specimens; scales above lateral line with dark centers, these not forming distinct lines; a diffuse dark blotch on scapular region, very faint in the larger specimens; pectorals colorless, other fins punctate, the margins very dark. A more or less distinct pale streak curving backward and upward from corners of mouth to behind eye. There is considerable variation in the ground color, the larger specimen being distinctly silvery, some of the smaller heavily washed with olive and having the scapular blotch more developed.

Our specimens differ from Steindachner's description in having a shorter maxillary, not reaching eye, narrower preorbital and a blotch on scapular region.

Five specimens $5\frac{1}{2}$ to $7\frac{1}{2}$ inches long. This species has not before been noticed in the West Indies.

SPARIDÆ.

112. *Calamus calamus* (Cuvier & Valenciennes). White Porgee.

Pagellus calamus Cuvier & Valenciennes, VI, 206, pl. 152, 1836 (Martinique. San Domingo).

Calamus calamus, Jordan & Fesler, Sparoid Fishes, 511.

113. *Calamus penna* (Cuvier & Valenciennes). White Porgee.

Pagellus penna Cuv. & Val., VI, 209, 1830 (Brazil).

Calamus penna, Jordan & Fesler, Sparoid Fishes, 514.

114. *Calamus proridens* Jordan & Gilbert. Sheeps Head Porgee.

Calamus proridens Jordan & Gilbert, Proc. U. S. Nat. Mus., 1884, 150 (Key West).

115. *Calamus bajonado* (Poey). White Porgée.

Calamus bajonado Bloch & Schneider, Syst. Ichth., 284, 1801 (Havana, after Parra).

116. *Archosargus unimaculatus* (Bloch). Shore Bream.

Perca unimaculata Bloch, pl. 308, 1798 (Brazil).

Archosargus unimaculatus, Jordan & Fesler, Sparoid Fishes, 520.

Accessory scale of ventrals very long, almost as long as ventral spine.

LOBOTIDÆ.**117. *Lobotes surinamensis* (Bloch). Whiting; Sea Sand Fish.**

Holocentrus surinamensis Bloch, Ichthyol., pl. 243, 1797 (Surinam).

Lobotes surinamensis, Jordan & Gilbert, Synopsis, 535.

Head $2\frac{3}{8}$, depth $1\frac{5}{8}$ in length; eye $5\frac{1}{2}$ to 6 in head; D. XII, 15; A. III, 11; B. VI; scales 10-45-16.

Body deep, compressed, head heavy, anterior profile concave, but convex from front of dorsal to occiput. Mouth small, maxillary $2\frac{5}{8}$ in head, slipping slightly under preorbital for its full length; jaws each with a band of villiform teeth, in front of which is a row of larger conical teeth; no other teeth in the mouth. Eye nearly two in interorbital space in a specimen 8 in. long, $1\frac{1}{2}$ in smaller specimens; interorbital space nearly flat, slightly raised in the middle and at the edges; scales on top of head extending forward past middle of eye, the anterior boundary of the scales with three nearly equal emarginations, one behind premaxillary groove and one behind each pair of nostrils, the middle one scarcely the larger; preorbital slightly scaly, scales around eye very small and irregular, those on cheeks larger, those on opercles largest. Opercular spines very short and blunt, covered by the scales; preopercle with very strong spinous teeth, 10 or 12 on upper limb, 4 or 5 on lower, those at angle $\frac{1}{2}$ to $\frac{3}{4}$ length of eye, those above much shorter.

Dorsal spines strong, the fifth longest, about half of head, those behind nearly as long, the first scarcely longer than longest preopercular spines; soft rays of dorsal become longer to the 10th, which is $1\frac{1}{2}$ in head, after the 10th they become much shorter; anal similar to soft dorsal, the third spine longest $2\frac{3}{8}$ in head; the spinous portion of both fins depressible into a sheath, the soft portion of all vertical fins scaly at base. Caudal rounded, about $1\frac{1}{2}$ in head; pectorals rounded, 2 in head; ventrals inserted behind pectorals, slightly filamentous, $1\frac{2}{5}$ in head, the spine strong, curved, three-cornered. Lateral line following curve of back, through middle of caudal peduncle. Color in alcohol dark brown, variously blotched with

pale olive, in one specimen the latter predominating; a distinct dark brown or black stripe from eye toward origin of dorsal, another from eye to angle of preopercle, a pair of black stripes on top of head, a pair of small black blotches behind nape and a faint black blotch in front of dorsal; pectoral colorless, other fins black, anterior edge of soft dorsal and broad tip of caudal white.

So far as is known, this species is confined to the western Atlantic. It is certainly different from *Lobotes erate* of the East Indies, and the Pacific coast species of *Lobotes*, called *Lobotes pacificus* by Dr. Gilbert (Ms.), is widely different and may belong to a different genus.

GERRIDÆ.

118. *Ulæma lefroyi* (Goode).

Diapterus lefroyi Goode, Amer. Jour. Sci. and Arts, 1874, 123, (Bermudas).
Gerres lefroyi, Evermann & Meek, Proc. Acad. Nat. Sci. Phila., 1886, 259.

119. *Xystæma cinereum* (Walbaum). Deep Water Shad.

Mugil cinereus Walbaum, Artedi Piscium, 228, 1792 (Florida Keys; Bahamas; after Catesby).
Gerres cinereus, Evermann & Meek, Proc. Acad. Nat. Sci. Phila., 1886, 263.

Crossbars on body scarcely indicated; otherwise as described by Evermann & Meek.

120. *Eucinostomus pseudogula* (Poey). Long Shad.

Eucinostomus pseudogula Poey, Enum. Pisc. Cub., 53, pt. I, 1875 (Havana).
Gerres pseudogula, Evermann & Meek, Proc. Acad. Nat. Sci. Phila., 1886, 260.

Seemingly very abundant.

121. *Eucinostomus gula* (Cuvier & Valenciennes).

Gerres gula Cuvier & Valenciennes, VI, 464, 1830 (Martinique); Evermann & Meek, Proc. Acad. Nat. Sci. Phila., 1886, 264.

The numerous specimens here noted are, on an average, more slender than specimens from Florida with which we have compared them. They are, however, quite variable, and there is no basis for a specific distinction. Depth $2\frac{2}{3}$ to $2\frac{3}{4}$.

122. *Gerres rhombeus* Cuvier & Valenciennes. Schrer Fish; Maccaback Schrer Fish.

Gerres rhombeus Cuvier & Valenciennes, VI, 459, 1830 (Martinique; San Domingo); Evermann & Meek, Proc. Acad. Nat. Sci. Phila., 1886, 266.

123. *Gerres olisthostomus* Goode & Bean.

Gerres olisthostoma Goode & Bean, Proc. U. S. Nat. Mus., 1882, 423 (Indian River, Florida); Evermann & Meek, Proc. U. S. Nat. Mus., 1886, 267.

124. *Gerres brasiliannus* Cuvier & Valenciennes. Stone Bar.

Gerres brasiliannus Cuvier & Valenciennes, VI, 458, 1830 (Brazil; Porto Rico); Evermann & Meek, Proc. Acad. Nat. Sci. Phila., 1886, 268.

Four fine specimens, 9 to 10 in. long. Silvery-gray, finely dusted with black anteriorly; dark lines following the rows of scales; dorsal dusky, almost black in one specimen; caudal dusky, anals and ventrals scarcely dusky; ventrals slightly tinged with yellow; pectorals colorless, one axil dusky; no supraocular spot.

SCIÆNIDÆ.

125. *Cynoscion jamaicensis* (Vaillant & Bocourt). Mongalar Drummer.

Otolithus jamaicensis Vaillant & Bocourt, Miss. Sci. au Mexique, Poissons, 1874, 156 (Jamaica).

Head 3; depth $3\frac{1}{2}$ ($4\frac{2}{5}$ with caudal); eye $4\frac{1}{2}$ in head; dorsal X-I, 25 to 27; anal I, 9; scales 63.

Snout $3\frac{3}{4}$ in head, longer than eye; maxillary to below middle of pupil, $2\frac{1}{4}$ in head, lower jaw projecting. Depth of head over hinder margin of eye $1\frac{3}{4}$ in its length. A single large canine in front of upper jaw, four or five small teeth on side of lower jaw, other teeth few and small. Tongue free at end and sides, with a broad median groove. Slit of posterior nostril nearly vertical. Gill-rakers $3+7=10$, the longest $\frac{1}{2}$ eye. Opercular flap extending beyond upper base of pectoral. Preopercle with a membranous margin. Dorsals contiguous; membrane of anal scaled almost to tip, that of dorsal about half way. Scales weakly ctenoid, those on top of head irregular in size. Pectorals about equal in length to ventrals, $1\frac{1}{2}$ in head; caudal double concave, middle rays longest. Curve of lateral line gradual, becoming straight behind the fourth dorsal ray.

Color, in alcohol, very dark olive above, the entire sides with golden lustre, paler below; dorsals, pectorals and caudal lightly punctate, lower fins colorless. Tip of both jaws black. Inside of mouth silvery white, top of tongue and a band around inside of lower jaw bright yellow, roof of mouth lightly stained with yellow in some places.

This species is closely related to *Cynoscion obliquatus*, differing in having the caudal doubly concave, the preopercle unarmed, and the anal with but nine rays, and especially in its much more robust form.

The above description is based on five specimens 8 to 12 inches long; No. 4,564, Leland Stanford, Jr. University.

126. *Odontoscion dentex* (Cuvier & Valenciennes).

Corvina dentex Cuvier & Valenciennes, V, 139, 1830 (San Domingo).
Odontoscion dentex, Jordan & Eigenmann, Sciaenidae, 377.

127. *Bairdiella ronchus* (Cuvier & Valenciennes). Ground Drummer.

Corvina ronchus Cuvier & Valenciennes, V, 107, 1839 (Maracaibo; Surinam).
Bairdiella ronchus, Jordan & Eigenmann, Sciaenidae, 389, 1889.

The two specimens here noted, which are 9 in. long, differ slightly from a small one from Bahia. The second anal spine is $1\frac{3}{4}$ in head and does not quite reach the tips of the first two soft rays. The anal basis is more nearly horizontal, the anterior profile is slightly concave, the eye is shorter than snout, the teeth are smaller. The depth is a little less than head. Soft dorsal and anal scarcely dotted with darker; brownish dots on sides as in *B. armata*.

128. *Micropogon furnieri* (Desmarest). White Mouth Drummer.

Umbrina furnieri Desmarest, Première Décade Ichthyol., 22, pt. II, fig. 3, 1823 (Cuba).
Micropogon furnieri, Jordan & Eigenmann, Sciaenidae, 76.

A specimen $10\frac{1}{2}$ in. long has the following measurements: Head $3\frac{1}{8}$; depth $3\frac{3}{8}$; D. X-I, 28; A. II, 8. The color is less silvery than that of specimens from Havana, but otherwise it is essentially the same.

129. *Umbrina coroides* Cuvier & Valenciennes.

Umbrina coroides Cuvier & Valenciennes, Hist. Nat. Poiss., V, 187, 1830 (Brazil).

Head $3\frac{1}{2}$; depth $3\frac{1}{2}$ in length; eye $4\frac{3}{8}$ in head; scales 6-50-9; dorsal X-I, 27; anal II, 6.

Highest point of dorsal outline at anterior third of spinous dorsal, the anterior outline more strongly curved. Mouth inferior, horizontal or nearly so, teeth equal, in bands; barbel short, blunt; width of preorbital equal to length of eye; nostrils close together, the posterior oblong, more than twice as large as anterior, situated immediately in front of eye; preopercle finely and evenly serrate above angle; opercle with two dull points, not extending to edge of marginal membrane, the lower somewhat more acute, both evenly projecting. The lobes and pores in front of the mouth well-developed. Pectorals as long as ventrals, $1\frac{3}{4}$ in head, inserted under opercular membrane; ventrals inserted behind pectorals, the outer ray with a very fine filament. Third dorsal spine longest, $2\frac{1}{2}$ in head. Caudal slightly emarginate, the lower angle slightly rounded, upper and longest rays $1\frac{1}{2}$ in head, or equal to head in front of oper-

cle. Ground color steel-gray, somewhat silvery (slightly golden in one specimen), 9 dusky bars on side, the anterior and posterior less distinct, two in front of dorsal two under spinous dorsal, the fifth in front of second dorsal, the last at end of dorsal; each row of scales above belly with a dark line, these oblique above lateral line, irregular below; tip of spinous dorsal black, edge of soft dorsal dusky, ventral and tip of caudal faintly dusky, underside of opercle black.

This description is based on three perfect specimens 10 in. long. They are not so deep as the figure given by Cuvier (117), the caudal is shorter, and there are two fewer rays in the dorsal.

It seems best not to use the name *Umbrina broussonetii* for this species, as the short account given by Cuvier and Valenciennes does not agree with the species, and Broussonet's specimens may not have come from Jamaica.

130. *Menticirrhus martinicensis* (Cuvier & Valenciennes). Jews Harp Drummer.

Umbrina martinicensis Cuvier & Valenciennes, V, 186, 1830 (Martinique).

Menticirrhus martinicensis, Jordan & Eigenmann, *Sciænidæ*, 429, 1889.

Indistinct blotches on back and sides, scales above closely and finely punctate, below with larger punctulation on a silvery ground. All fins dusky at tip, pectoral and anterior dorsal very dark. D. X-I, 24.

131. *Eques acuminatus* (Bloch & Schneider).

Grammistes acuminatus Bloch & Schneider, *Syst. Ichth.*, 184, 1801.

Eques acuminatus, Jordan & Eigenmann, *Sciænidæ*, 98.

The specimen here noted belongs to the typical variety, *acuminatus*.

POMACENTRIDÆ.

132. *Abudefduf saxatilis* (Linnæus).

Chatodon saxatilis Linnæus, *Syst. Nat.*, Ed. X, 276, 1758 (India).

133. *Eupomacentrus diencæus* Jordan & Rutter, new species.

Head $3\frac{1}{2}$; depth 2 in length; eye $3\frac{2}{3}$ in head; dorsal XII, 15; anal II, 13; scales 4-28-9.

Body elliptical, the dorsal and ventral outlines about equally curved; snout short, not projecting; maxillary reaching vertical from anterior margin of orbit; eye placed above premaxillary; sub-orbital with one row of scales, finely serrate behind middle of eye; four rows of scales on cheeks; preopercle finely serrate on upper limb, the serratures somewhat larger at angle, a few on lower limb near angle; opercle with two obtuse points; lateral line ceasing under third to fifth ray of soft dorsal, with 17 to 19 scales; margins of

spinous dorsal nearly horizontal behind third spine, the last and highest spine being $1\frac{3}{4}$ in head; soft dorsal somewhat higher, pointed, the eighth and highest ray $1\frac{1}{2}$ in head; anal similar to soft dorsal, its highest ray $1\frac{2}{3}$ in head; tip of soft dorsal extending beyond that of anal, almost to middle length of caudal; caudal forked, the lobes rounded, the upper a little longer than head, $\frac{1}{2}$ longer than lower, middle rays of fin $1\frac{2}{3}$ in longest; length of pectoral equal to that of lower caudal lobe, a little greater than that of highest dorsal rays, about $1\frac{1}{10}$ in head; ventrals slightly filamentous, extending beyond origin of anal, slightly longer than the upper caudal lobe; least depth of caudal peduncle greater than its length, $2\frac{1}{8}$ in head; a row of scales on the membrane of every ray in the vertical fins, those on spinous dorsal larger and extending nearly to margin, those on soft portions of vertical fins smaller (the rays being close together) and extending about half way to margins; axillary scale of ventral not much developed. Nearly uniform dusky, the tips of the scales lighter, thus forming more or less distinct vertical streaks of light and dark; fins uniformly black; a dark spot at upper base of pectoral and another at lower; opercle darker than surrounding parts; a few very faint light points below eye.

The specimens here described have been compared with specimens of *Eupomacentrus fuscus* of similar size, from Albrolos Islands, Brazil, with which species they are most closely related. Our specimens have the caudal more deeply forked, the dorsal and anal higher, the vertical fins less densely scaled, the axillary scale shorter, much longer ventrals, the caudal and pectorals not lighter than other fins; and two dark-brown spots at base of pectoral, and the axil entirely black.

This description is based on two specimens 4 in. long. 4,969, L. S., Jr. Univ. Mus.

134. *Chromis multilineatus* Guichenot.

Heliases multilineatus Guichenot, Sagra, Poiss. Cuba, 76, 1855, Havana, in part.

Furcaria puncta Poey, Mem., II, 195, 1860.

Head $3\frac{3}{4}$; depth $2\frac{3}{4}$ in length; eye $3\frac{1}{4}$ in head; dorsal XII, 11; anal II, 12; scales 4-28-9; branchiostegals 5 or 6.

Body elongate, both curvatures about equal, head slightly concave in front of eye: eye low, a line from tip of snout to tip of opercle passing through lower edge of pupil; maxillary slipping under pre-orbital, its tip below anterior margin of orbit; a band of villiform teeth in each jaw, in front of which is a single row of conical pointed teeth, the most anterior larger, especially in lower jaw; no

regular serræ on any of the opercular bones, but the preopercle slightly rough at angle and above, opercle with a single obtuse point; snout equal to eye; lateral line ceasing on front of end of dorsal, with 19 scales; a series of disconnected pores along the side of tail; fourth dorsal spine highest $2\frac{1}{2}$ in head; soft dorsal pointed, the tips reaching base of caudal, longest ray $1\frac{3}{4}$ in head; second anal spine 2 in head, equal to soft rays; pectoral equal to head; ventral slightly filamentous, reaching past vent, $1\frac{1}{2}$ in head; axillary scale and scale between the fins, long, attenuate; caudal deeply forked, the lobes pointed, the upper longer.

Color, in alcohol: back dusky, becoming paler with bluish on the sides, with faint lines along side of belly, white below; dorsal black, the last 4 or 5 rays white; middle rays of caudal white, outer rays dusky, tip of soft dorsal yellowish; anal slightly dusky; pectoral colorless, the axil black, the black showing as a small blotch at upper base; ventrals white; a sulphur-yellow blotch across tail behind dorsal.

Two specimens, $4\frac{1}{2}$ in. long. No. 4,963, L. S. Jr. Univ. Mus.

The specimens here described differ from the description of *punctus* Poey, in having but 6 branchiostegals, and in having the yellow dorsal margin restricted to the soft portion. The species is very close to *Chromis marginatus*. Compared with a specimen of this species from Bahia, *Chromis multilineatus* differs in the following respects: body more elongate, a greater number of last rays of dorsal yellow, a distinct bright yellow spot present behind dorsal.

Chromis marginatus has the depth $2\frac{1}{2}$ in length, there is but one pale or yellow ray in the dorsal, and there is no yellow spot at the base. The axil is jet-black in both, the color encroaching on the upper base of the pectoral.

Chromis atrilobatus Gill, from the Pacific coast, is also very similar, but in this species there is a black bar across base of pectoral.

LABRIDÆ.

135. *Lachnolaimus maximus* (Walbaum). Hog Fish.

Labrus maximus Walbaum, Artdi Piscium, 261, 1792 (after Catesby).

Lachnolaimus maximus, Jordan, Labroid Fishes, 28, Report U. S. Fish Com., 1887, 626.

136. *Harpe rufa* (Linnaeus). Spanish Hog Fish.

Labrus rufus Linnaeus, Syst. Nat., Ed. X, 284, 1758 (after Catesby; Carolina).

Harpe rufa Jordan, Labroid Fishes, 31.

137. *Chlorichthys bifasciatus* (Bloch).

Labrus bifasciatus Bloch, Ichthyol., pl. 283, 1792 (East Indies).

Thalassoma bifasciatum, Jordan, Labroid Fishes, 56.

Head and iris very dark purple; body to tip of pectorals black, posteriorly green, the base of the scales darker; caudal peduncle dusky, greenish on sides; a pale greenish band across back and sides through front of spinous dorsal; outer rays of caudal black, inner white; spinous dorsal black, soft dorsal greenish with a pale margin; anal greenish, dusky anteriorly; pectoral white, the tips and base black; outer rays of ventrals black, others pale; head without color markings, but the numerous pores on the cheek seem to have mucous tubes radiating from the eye.

SCARIDÆ.**138. *Sparisoma flavescens* (Bloch & Schneider).**

Scarus flavescens Bloch & Schneider, Syst. Ichth., 290, 1801.

Sparisoma flavescens, Jordan, Labroid Fishes, 74.

Caudal fin distinctly barred with brown, except the middle rays which are pale. Body uniform brownish-olive; dorsal mottled with brown, anal and ventrals white; pectorals colorless, a black spot at upper base of pectorals; chin and throat white; cheeks and top of head washed with cherry red. (Color notes from alcoholic specimen). Caudal lunate, the upper lobe the longer.

One specimen, 10 in. long.

139. *Sparisoma distinctum* (Poey).

Scarus distinctus Poey, Mem., II, 423, 1860 (Cuba).

Sides olivaceous, mottled with darker, an indistinct dark band from above pectoral to caudal; vertical fins mottled with bright red, especially posteriorly, the caudal being entirely red in some specimens; a white cross blotch on tail behind dorsal; the scales below more or less distinctly pale edged; pectorals tinged with yellowish olive; ventrals white; some specimens with the belly and ventral fins almost entirely red, the outer rays only being white, others with but little red anywhere. This species is the *frondosum* of Günther and of Jordan but not of Agassiz, which is the *aracanga* of Günther,

140. *Sparisoma rubripinne* (Cuvier & Valenciennes).

Scarus rubripinnis Cuvier & Valenciennes, XIV, 199, 1839 (San Domingo).

A single specimen 9 in. long. The life colors of this specimen were not noted. In alcohol it is olive, mottled with lighter, nearly white below; a rather distinct white band below chin; dor-

sal mottled; caudal strongly marked with cross blotches, a pair of subterminal blotches of white which nearly meet in the middle; other fins all white, the pectoral dusky (not black) at base; no yellow blotch behind dorsal. Margin of caudal concave; forehead strongly convex. The names *rubripinnis*, *circumnotatus*, *emarginatus*, *virens* and *truncatus* seem to have been based on this species, which is distinct from *S. flavescens*, and probably from *S. distinctum* and *S. frondosum*.

141. *Sparisoma brachiale* (Poey).

Scarus brachialis Poey, Memorias, II, 345, 1860 (Cuba).

Sparisoma brachiale, Jordan, Labroid Fishes, 75.

142. *Sparisoma chrysopteron* (Bloch & Schneider). Blue Parrot.

Scarus chrysopteron Bloch & Schneider, Syst. Ich., 286, 1801, pl. 57 (American Seas).

Sparisoma chrysopteron, Jordan, Labroid Fishes, 76.

Deep blue-green, head and portion behind pectorals brighter; an ill-defined pale band on lower part of sides; lower part of body greenish. Dorsal and anal yellowish; caudal with upper and lower rays green, tip with a narrow green border, in front of which is a narrow orange crescent, the remaining portion of the central rays pale yellow. Pectoral colorless, the upper rays tinged with lemon-yellow, a dark spot at upper edge of base, axil orange, some orange in front of base; teeth bluish.

143. *Sparisoma lorito* Jordan & Swain.

Sparisoma lorito Jordan & Swain, Proc. U. S. Nat. Mus., 1884, 95 (Havana); Jordan, Labroid Fishes, 76.

Nearly uniform pale green; top of head in front of eyes white; a blue streak from upper lip to eye and another from lower lip toward pectoral; dorsal yellowish; middle of caudal rays orange, outer green; anal dusky white; pectorals and ventrals white, a dusky blotch at upper base of pectorals.

144. *Sparisoma viride* (Bounaterre). Dark Green Parrot.

Scarus viridis Bounaterre, Enc. Meth., X, 96, 193, 1788 (Bahama, after Catesby).

Sparisoma viride, Jordan, Labroid Fishes, 77.

Deep blue, scales edged with brownish, which above makes one or two continuous streaks; top of head light grayish-brown, a similar band from eye to above gill-opening, another paler stripe from opercle to corner of mouth and edges of both lips; edge of opercle below pale grayish, changing to bright orange above, a deep yellow spot at tip of opercle; no inky black spot on opercle; lips deep

blue except for gray edging ; head below livid olive. Dorsal light yellowish, tips of spines and rays normally blue, base of soft part blue ; anal bluish-gray, with deep blue band at base and edge ; pectoral blue-gray, edged with bright blue above, tips broadly orange ; caudal blue-green, with a lunate yellow band, behind this a deep blue-band, tips of rays pale, outer rays deep blue, a faint band of golden-gray at base ; ventrals yellowish, blue anteriorly.

145. *Sparisoma aurofrenatum* (Cuvier & Valenciennes).

Scarus aurofrenatus Cuvier & Valenciennes, XIV, 191, 1839 (San Domingo).

Sparisoma aurofrenatum, Jordan, Labroid Fishes, 77.

Sides rosy, dusky olive on back and top of head ; iris red ; a white streak backward from corner of mouth past eye, bordered on each side by dusky ; a yellow and black blotch below lateral line on third or fourth scale behind head ; dorsal yellowish, becoming reddish-orange posteriorly ; anal crimson, narrowly edged with black ; caudal pale yellowish at base, outer rays and lunate stripes across middle light red, the middle rays bluish beyond, with a faint reddish edge, tips of outer rays black.

146. *Sparisoma abildgaardi* (Bloch). Rose Back Parrot.

Scarus abildgaardi Bloch, pl. 259, 1791.

Sparisoma abildgaardi, Jordan, Labroid Fishes, 78.

Back and sides mottled olive, the scales with dark edges ; top of head dark olive ; belly abruptly cherry-red or scarlet ; lower part of head black, dashed with red, a pale band at base of lower jaw. Lower fins scarlet, pectoral paler, caudal yellowish washed with red ; dorsal dusky olive, tinged with red behind ; dorsal all red in one specimen ; margin of opercle blue-black ; teeth pale.

147. *Sparisoma radians* (Cuvier & Valenciennes).

Scarus radians Cuvier & Valenciennes, XIV, 206, 1839.

Sparisoma radians, Jordan, Labroid Fishes, 79.

148. *Scarus punctulatus* Cuvier & Valenciennes.

Scarus punctulatus Cuvier & Valenciennes, XIV, 195, 1839 (Martinique) ; Jordan, Labroid Fishes, 84.

Back plain dusky yellow anteriorly ; scales on sides and back posteriorly green, broadly tipped with yellow ; sides of head pinkish, a green stripe connecting upper side of orbits and extending backward to gill-openings ; lips green, the lower with an oblong pinkish spot on each side, these connected or not ; the green band of lower lip extending backward under eye to gill-opening ; breast plain bluish ; dorsal dull orange, its margin and base green, and

S-shaped markings on the rays; anal similar to dorsal, but the markings on the rays nearly round; caudal marked with rivulations of green and orange, the outer rays deep green; pectoral green at base, upper margins yellowish, otherwise colorless; outer rays of ventrals green, otherwise colorless.

149. *Scarus croicensis* Bloch.

Scarus croicensis Bloch, Ichthyologia, pl. 221, 1790 (St. Croix); Jordan, Labroid Fishes, 87.

Color quite variable, usually pale reddish-brown with light streaks extending backward from above and below eye, the upper ending below end of dorsal, the lower extending along middle of tail, a dark band between them and another less distinct below them; belly pale. In some specimens the sides are almost uniformly dark, the dark lateral bands being very indistinct. Middle of caudal fin sometimes slightly pale, but not in all specimens. Dorsal pale, sometimes nearly covered with dark mottlings. Anal pale or white. Upper rays of pectoral yellowish olive, paired fins otherwise pale. Teeth white, reddish at base, one or two canines on one side in some specimens.

150. *Scarus cæruleus* (Bloch). Dark Blue Parrot Fish.

Coryphæna cærulea Bloch, Ichthyologia, II, 120, taf. 176, 1786 (Bahamas, after Catesby).

Scarus cæruleus, Jordan, Labroid Fishes, 88.

Body ultramarine blue; fins blue, dorsal edged with darker blue, the membrane of spinous dorsal blackish at base; a sky-blue band from eye to and across each lip; a pale band below it on under lip, a narrow pale edging above. Pectoral with base and upper ray blue, rest of fin pale; anal deep blue, blackish at base; ventrals blue, the last rays paler; caudal deep blue, the outer rays darker, posterior edge pale; teeth pale.

Specimens, about six inches long, have the back yellow, scales on sides yellow with green edges, belly nearly uniform greenish; outer rays of caudal deep green, middle rays paler; dorsal yellow, edged with green; anal pale yellowish, edged with green; pectorals nearly colorless, slightly orange at tip; ventrals greenish; teeth white.

151. *Scarus emblematicus* Jordan & Rutter, new species.

Head 3; depth $3\frac{1}{2}$ in length; eye $4\frac{3}{4}$ in head; dorsal IX, 10; anal III, 9; scales 3-24-5.

Dorsal and ventral outlines regularly and similarly curved, body highest over pectorals; nostril in front of eye, close together, very

small, scarcely larger than some of the numerous pores which surround the eye, the anterior round with a circular marginal valve, the posterior oblong with a valve on lower side; eye $1\frac{2}{3}$ in snout, low, a line drawn from corner of mouth to angle of opercle passes along lower edge of orbit; jaws projecting, the upper without canines; cheeks with only two rows of scales. Origin of dorsal and root of pectoral in the same vertical, which is anterior to tip of opercle. Tips of last dorsal and anal rays reach base of rudimentary caudal rays. Caudal truncate, slightly rounded when the fin is spread. Back dusky olive, a pale yellowish streak from upper side of eye to upper base of caudal, below this a band similar in color to the back extends from eye to caudal, sides below pale, with an indistinct dusky streak from above pectoral to caudal; a horizontal green stripe from upper end of gill-opening forward through upper edge of eye and across top of snout; another parallel with this from gill-opening through lower edge of eye and around upper lip; lower lip white, edged with green, a green band across chin, and a pair of indistinct green blotches on throat; breast washed with green; base and edge of dorsal and anal green, a broad white stripe through the middle of each; upper and lower rays of caudal white tipped with orange, edged on each side with green, the middle rays pale dusky green, paler at base; pectorals and ventrals white, the former not dusky at base; teeth white.

This species is most nearly related to *Scurus coeruleus*, but differing decidedly in the color markings.

The above description is based on a single specimen 6 in. long.

EPHIPPIDÆ.

152. *Chætodipterus faber* (Broussonet). Portuguese.

Chætodon faber Broussonet, Ichth. Decas., 1, V, t. 4, 1782.

Chætodipterus faber, Jordan & Gilbert, Synopsis, 613.

CHÆTODONTIDÆ.

153. *Chætodon ocellatus* Bloch.

Chætodon ocellatus Bloch, Ichthy., pl. 211, fig. 2, 1787; Eigenmann & Horning, Chætodontidæ, 7.

Dorsal, anal, forehead and edges of gill-covers yellow.

154. *Chætodon striatus* Linnaeus. Butterfly.

Chætodon striatus Linnaeus, Syst. Nat., Ed. X, 275, 1758 (India); Eigenmann & Horning, Review Chætodontidæ, 8.

Side whitish, with narrow dark lines between the rows of scales, a black stripe from occiput through eye to lower side of head; a

broad dusky band from anterior part of dorsal across sides behind pectoral and ventral, not hiding the longitudinal markings; another similar one from posterior part of spinous dorsal to and across middle of anal; an olive band across caudal peduncle and fins adjacent; soft dorsal and anal light at base, a broad olive band through middle, this edged with black, the tips narrow, yellowish; caudal similar but with an additional colorless margin; olive mottlings at base of caudal; pectoral colorless; ventral plain dusky, lighter at base. In one of the two specimens here noted, there is a large, ill-defined, rosy blotch behind pectoral.

155. *Chætodon capistratus* Linnaeus.

Chætodon capistratus Linnaeus, Syst. Nat., Ed. X, 275, 1758 (India); Eigenmann & Horning, Review Chætodontidae, 9.

156. *Pomacanthus paru* (Bloch). Angel Fish.

Chætodon paru Bloch, Ichth., taf. 197, 1787 (Antilles).

Pomocanthus aureus, Eigenmann & Horning, Chætodontidae, 12.

Head $3\frac{3}{4}$, depth $1\frac{2}{3}$, eye $3\frac{1}{2}$; dorsal IX, 32; anal III, 24; scales 50 in longitudinal series.

Body a regular ellipse, caudal peduncle short, less than half its depth. Length of head equal its depth below top of eye. Dorsal and anal falcate, the lobes extending beyond caudal, the posterior portion of each rounded. Ventral spine $1\frac{1}{4}$ in head. Caudal truncate. A broad, sharp spine at angle of opercle, no other spines on head. Lateral line extending to base of caudal fin.

Color, in alcohol: Sides silvery gray, each scale edged with white. Head and breast olive (probably blue in life); ends of dorsal and anal and middle portion of caudal dusky, ventrals black; terminal portion of pectorals colorless; tips of snout dark, remainder white; a white band beginning in front of ventrals and extending upward through opercle and becoming very narrow on nape; a white band across side behind pectoral, extending along edge of spinous portion of anal, and along the last dorsal spine to edge of fin; another white band on posterior portion of side fading out on vertical fins, one across base of caudal and another across tip. Some specimens have a median white stripe on top of head, others an indistinct dark one.

In a specimen 12 inches long the spine at angle of preopercle is as long as eye, while in the smaller it is but $\frac{2}{3}$ eye. All the white bars are wanting except the one at tip of caudal; the whole body is nearly uniform gray, the scales narrowly edged with white; below the pectoral only a few scales white; upper rays of pectoral yellow-

ish-green; chin and narrow line around upper jaw white, end of both jaws very dark.

157. *Pomacanthus arcuatus* (Linnaeus).

Chatodon arcuatus Linnaeus, Syst. Nat., Ed. X, 273, 1758 (Indies).

Pomocanthus arcuatus, Eigenmann & Horning, Chaetodontidae, 13.

The young of this species has the tip of the caudal white and the base of the pectoral but slightly yellow. This species is distinguished from *Pomacanthus paru* by its rounded caudal besides other characters, the latter having the caudal truncate.

158. *Holacanthus tricolor* (Bloch). Rock Beauty.

Chatodon tricolor Bloch, Ichth., pl. 426, 1795.

Pomocanthus tricolor, Eigenmann & Horning, Review of Chaetodontidae, 15.

Head and body in front of a line connecting second dorsal spine, axil of pectoral and second anal spine, lemon-yellow, slightly orange in front of dorsal; pectorals and ventrals lemon-yellow; the caudal similar but thickly covered with reddish-orange dots; remaining part of body, vertical fins and lips black; slightly dusky between eyes; horizontal margins of vertical fins, margin of opercle and preopercular spine reddish; posterior tips of dorsal and anal lemon-yellow; iris yellow-blue above and below.

159. *Angelichthys ciliaris* (Linnaeus). Angel Fish.

Chatodon ciliaris Linnaeus, Syst. Nat., Ed. X, 276, 1758 (Indies).

Head $3\frac{1}{2}$, depth $1\frac{7}{8}$, eye $4\frac{1}{2}$ in head; dorsal XIV, 21; anal III, 21.

Body oblong, oval; anterior profile straight, steep, sharply convex in front of dorsal; anterior dorsal outline and ventral outline nearly parallel; jaws projecting. Length of head equal to its depth from anterior margin of blue ring in front of dorsal. Snout $2\frac{1}{2}$ in head, the preorbital one-third broader than eye, with one or two indistinct spines. Preopercle with a strong grooved, lightly curved spine at angle, about as long as orbit; five or six short, blunt spines with intermediate minute ones on upper limb, the longest of these spines 6 in the spine at the angle; two or three short, strong spines on lower limb. Interopercle with one or two short spines. Premaxillary very thick, its width above equal to orbit. A furrow from front of eye below nostrils. Interorbital greater than preorbital, equal to distance between eye and upper end of gill-opening. Soft dorsal and anal falcate, the filamentous tips reaching much beyond the caudal. Pectoral broad, obliquely rounded, $1\frac{2}{3}$ in head. Ven-

trals long, the spine long, $1\frac{3}{4}$ in head, the rays slightly filamentous, not quite reaching anal, equal to head. Caudal rounded, equal to head behind premaxillary. Lateral line ceasing before reaching end of dorsal, the scales below regularly arranged, those above irregularly.

Color: Ground color olive. terminal half of scales on sides yellow, side of head yellowish-olive, top of head dusky; a blue ring in front of dorsal surrounding a black spot containing a few pale blue specks; iris yellow, blue above and below; upper jaw blue-black, some yellow at corner of mouth; lower jaw, lower side of head and breast dusky olive; a dark blue margin to opercle much broader above than below; upper edge of preopercular spine pale blue; edge of dorsal fins blue-black, a black blotch on last rays, the fins otherwise reddish or orange, becoming paler toward tip of filament; anal similar to dorsal, but darker; caudal entirely pale orange or clear lemon-yellow; pectorals lemon-yellow, the base with a brown blotch bordered anteriorly by a narrow blue stripe; ventrals lemon-yellow, somewhat dusky at base.

TEUTHIDIDÆ.

160. *Teuthis bahianus* (Castelnau).

Acanthurus bahianus Castelnau, Anim. Nouv. Rares. Amer. S., 24, pl. 11, fig. 1, 1855.

Acanthurus tractus Poey, Memorias. II, 1860, 208 (Cuba).

Teuthis tractus, Meek & Hoffman, Proc. Acad. Nat. Sci. Phila., 1884, 229.

161. *Teuthis hepatus* Linnaeus.

Teuthis hepatus Linnaeus, Syst. Nat., Ed. 12, 507, 1766; Meek & Hoffman, Proc. Acad. Nat. Sci. Phila., 1884, 229.

Nearly uniform brownish, the fins darker on edges, no dark cross lines on sides.

BALISTIDÆ.

163. *Balistes vetula* Linnaeus. Bessy Cerka.

Balistes vetula Linnaeus, Syst. Nat., Ed. X; Günther, Cat., VIII, 215.

Dorsal III-30; anal 27. A blue line about the mouth, sending a branch from above the corner of the mouth toward the throat; other colors are described by Günther.

164. *Melichthys piceus* Poey.

Balistes piceus Poey, Proc. Acad. Nat. Sci. Phila., 1863, 180.

One dried specimen.

165. *Alutera punctata* Agassiz. Long Mingo.

Alutera punctata Agassiz, Pisc. Brazil, 1829, 137, pl. 76, very bad.

Head to upper end of gill-opening $3\frac{1}{2}$ in length; depth $2\frac{1}{2}$; dorsal I-36; anal 35; orbit $4\frac{1}{2}$ in head to upper end of gill-opening; length of gill-opening 3; caudal $2\frac{1}{2}$ in body; base of dorsal 3.

Profile concave; lower jaw much projecting, teeth in a single series in each jaw; eye $1\frac{1}{2}$ its diameter below dorsal outline of body; dorsal spine (broken) situated over middle of eye a little nearer soft dorsal than tip of snout; base of soft dorsal slightly shorter than that of anal; pectoral short, equal to gill-opening, its base under posterior third of gill-opening and anterior margin of eye; caudal peduncle $2\frac{1}{2}$ times longer than eye; caudal long and rounded behind.

Color, in spirits, slaty-brown, darker above, covered with small, round, dark-brown spots, about half as big as pupil; snout dark; dorsal and anal dusky; caudal black.

Here described from a specimen about 9 inches in length.

This species is evidently distinct from the northern *Alutera schorffi*.

166. *Limnacanthus pullus* (Ranzani).

Monacanthus pullus Ranzani, Nov. Comm. Acad. Sci. Inst., Bonon., 1842, V, p. 4, taf. 1.

Monacanthus pardalis, Günther, Cat., VIII, 230.

167. *Monacanthus hispidus* (Linnaeus). Mingo.

Balistes hispidus Linnaeus, Syst. Nat., Ed. XII, 405 (Carolina).

Several specimens (one dried) $4\frac{1}{2}$ in. long. The snout seemingly more produced, and more concave in profile than the northern form, but otherwise the same. The two males have the side of the caudal peduncle covered with retrorse spinelets, and have a smaller eye than the females. ♂, eye $2\frac{1}{2}$ to $2\frac{3}{4}$ in snout; ♀, eye $2\frac{1}{2}$ to $2\frac{3}{4}$ in snout. Covered with small dots which are sometimes arranged in horizontal rows, and irregular dark blotches.

168. *Monacanthus ciliatus* (Mitchill). Flap Mingo.

Balistes ciliatus Mitchill, Amer. Monthly Mag. and Crit. Review, No. V, Vol. II, Mch., 1813, p. 326 (Strait of Bahama).

Body with dark horizontal bands; caudal with two dark cross-bands, one being at the tip; ventral flap washed with yellowish-olive, with a dark blotch in male; fins colorless in females; dorsal and anal tinged with yellow in the male.

OSTRACIIDÆ.

169. *Lactophrys triqueter* (Linnaeus).

Ostracion triqueter Linnaeus, Syst. Nat., Ed. X, 330 (India); Günther, Cat., VIII, 256.

170. *Lactophrys trigonus* (Linnaeus).

Ostracion trigonus Linnaeus, Syst. Nat., Ed. X, 330 (India); Günther, Cat., VIII, 256.

171. *Lactophrys tricornis* (Linnaeus).

Ostracion tricornis Linnaeus, Syst. Nat., Ed. X, 331, 1758 (India).

Ostracion quadricornis Linnaeus, Syst. Nat. Ed. X, 331, 1758 (India); Günther, Cat., VIII, 257.

Three specimens, $5\frac{1}{2}$ in. long. Ocelli confined to dorsal region, sides with or without large blotches. A prominent streak under eye, cheeks with blotches or small spots. Some specimens have a row of spots through middle of caudal. Dorsal ridge with or without a spine behind dorsal.

172. *Lactophrys bicaudalis* (Linnaeus). Trunk Fish.

Ostracion bicaudalis Linnaeus, Syst. Nat., Ed. X, 330, 1758 (India); Günther, Cat., VIII, 257.

Dorsal ridge sharp, spines of ventral ridges (measured on the outer side) $2\frac{3}{4}$ in head. Plates of carapace closely covered with very small tubercles, these largest in middle of sides. Entire body, tail and caudal fins regularly covered with round, black spots, these also largest in the middle of sides. Dorsal and pectorals colorless.

TETRAODONTIDÆ.

173. *Lagocephalus pachycephalus* (Ranzani). Jug Fish.

Tetradon pachycephalus Ranzani, Nov. Comm. Ac. Sci. Inst., Bonon., IV, 1840, 73, pl. 11, fig. 2 (Brazil).

Head $2\frac{3}{5}$; depth $3\frac{1}{2}$; eye $3\frac{2}{5}$. D. 14; A. 13; P. 17.

Body heavy, tapering from middle of head backward; snout blunt; length of caudal peduncle equal to head in front of middle of pupil. Vertical diameter of eye $\frac{4}{5}$ of horizontal diameter. Interorbital space slightly concave, 2 in distance from end of snout to middle of pupil; distance between eyes equal to snout. Gill-opening vertical, broader than base of pectoral. Nuchal cross line of mucous pores half way between snout and origin of dorsal, and one-third the distance to base of caudal. Dorsal and anal alike and opposite, both somewhat falcate, the last ray about $4\frac{1}{2}$ in longest, which is $\frac{5}{8}$ in head. Pectoral very broad, the margin oblique, slightly sinuous, lowest ray $\frac{3}{4}$ longest, which is as long as snout; 2

in head, the fifth ray from bottom shortest. Upper and lower rays of caudal slightly produced, middle rays even, upper lobe larger, as long as caudal peduncle. Folds on lower part or side of tail extending forward and meeting on chin, a very slight fold on each side of tail above. Small, imbedded, three-rooted spines on the belly between the lateral ridges, not extending on to chin nor to vent, skin otherwise perfectly smooth. Lines of mucous pores as in *Lagocephalus laevigatus*; four short lines enclosing a quadrangular area behind the eye, from the anterior corners of which extends a line surrounding the eye, the posterior inner corners connected by the nuchal line, the lateral line extending from the posterior outer corner. Lateral line extending directly backward till nearly even with the dorsal fins, then curving downward and extending along middle of tail to base of caudal.

Color, in alcohol: Silvery-olive above, clouded with dark olive, a faint greenish-olive area along sides, lower part on side silvery, below white.

This species differs from *L. laevigatus* in the robust body with short caudal peduncle, the merely emarginate caudal fin, and the shape of the pectoral.

Two specimens, $9\frac{1}{2}$ inches long.

174. *Spheroides marmoratus* (Ranzani). Spiny Back Blow Fish.

Tetodon marmoratus Ranzani, Nov. Comm. Ac. Sci. Inst., Bonon., IV, 72, pl. 10, fig. 1, 1840 (Brazil).

Head $2\frac{3}{4}$; depth 4; eye $4\frac{1}{2}$ in head. D. 7; A. 6; P. 14.

Outline of head concave in front of eye; eye full and high, its distance above a line drawn from corner of mouth to upper base of pectoral equal to its longitudinal diameter. Interorbital space very narrow, grooved, its width equal to that of pupil. Snout long, $1\frac{2}{3}$ in head. Nostrils at end of a tube, situated about equally distant from end of snout and posterior edge of eye. Gill-opening equal to base of pectoral, but higher. Length of caudal peduncle from anal 2 in head. Length of head equal to half of distance in front of dorsal. Posterior rays of dorsal $1\frac{1}{2}$ in longest, which are $2\frac{1}{2}$ in head. Pectoral very broad, folding fan-like, the margins scalloped, broadly rounded, lowest ray $1\frac{3}{4}$ in upper which is $2\frac{3}{4}$ in head. Caudal fin slightly longer than the distance of its base from dorsal, its rays all of equal length, $1\frac{1}{4}$ in head. Prickles on ventral surface between chin and vent, extending on side of head in front of pectoral fin, on side behind pectoral fin to vertical from dorsal, above from nostrils

to dorsal; only the snout, axil of pectoral and caudal peduncle naked. Lateral line very faint, extending obliquely upward from side of snout under eye, then backward, curving slightly downward under dorsal, most distant on side of tail.

Color, in alcohol: Above very dark brown, with black blotches, the sides lighter with very pale reticulations, a series of about a dozen irregular black spots along lower side; below white; caudal slightly dusky, with no indications of bars, other fins colorless.

This species differs from *Spheroides spengleri* in the high and prominent eye, the very narrow interorbital, the strongly concave outline of snout, the extensive distribution of prickles, and in color.

175. *Spheroides testudineus* (Linnaeus). Blow Fish.

Tetrodon testudineus Linnaeus, X, 332, 1758; Günther, Cat., VIII, 282.

Spheroides testudineus, Jordan & Edwards, Proc. U. S. Nat. Mus., 1886, 239.

The specimens here noted have been compared with specimens of *Spheroides annulatus* from various localities on the Pacific Coast. The spots on the sides are much larger in our specimens and the dorsal not so high; height of dorsal $2\frac{1}{2}$ in head, when depressed, reaching about half way to caudal. In the Pacific Coast specimens the height of the dorsal is 2 or slightly less than 2 in head, when depressed, extending over $\frac{2}{3}$ or $\frac{3}{4}$ of the caudal peduncle.

DIODONTIDÆ.

176. *Diodon hystrix* Linnaeus. Soursap; Porcupine Fish.

Diodon hystrix Linnaeus, Syst. Nat., Ed. X, 335, 1758 (India, after Artedi); Eigenmann, American Diodontidæ, 297, 1885.

Several specimens $2\frac{1}{2}$ to 11 in. long and a skin 20 in. long. Those about 6 or 7 inches long have the frontal and postpectoral spines about equal, and all spines are covered with thick skin nearly to their tips. There is a deep black blotch below and above the eye, a broad one across the nape, a large one above each pectoral, a larger one just behind middle of back and one around base of caudal; besides these there are numerous, small, round spots about the size of the pupil or smaller and about as numerous as the spines, scattered over the body, there being three on each side of the tail and three on upper side; two or three of these behind and in front of the pectoral forming a single blotch. Ground color white below, dun color above. Fins all colorless.

The larger specimens have the frontal spines much shorter than the postpectoral spines. There are no large blotches, but the dorsal surface and fins are everywhere thickly covered with small round black spots, very numerous around eye and on snout.

The very small specimens are very dark with small spots as in the adults; fins pale. They have a number of cirri around the mouth, a pair above the eyes being especially large. One pair, those on the chin, remain in the adult.

177. *Chilomycterus antillarum* Jordan & Rutter, new species.

Allied to *Chilomycterus schoepfi*, differing in having the whole body covered with black hexagonal reticulations instead of parallel lines. This species has been described by Poey, Synopsis Cuban Fishes, p. 429, as "Species dubia, an *Chilomycterus fuliginosus*?"

Supraorbital spines two, one frontal spine, a single spine below and in front of eye, two between eye and gill-opening; interorbital space deeply concave; a transverse series of cirri on chin, and nearly all of the spines along the margin of the belly have cirri, but there are none above the eyes. Spines short and flat.

Color, in alcohol: Above chestnut-brown, paler on sides, yellowish below, the body everywhere covered with reticulating black lines enclosing more or less nearly hexagonal areas somewhat smaller than the pupil; on the belly, lines become heavier, so that Poey's character of "orange spots in a dark back-ground" is not far wrong; an ocellated black spot about the size of the eye above the pectoral, another behind it, and one on each side of the dorsal; a black blotch on chin in front of the row of cirri and another at each end.

Type 5,056, L. S. Jr. Univ.

SCORPÆNIDÆ.

178. *Scorpæna brasiliensis* Cuvier & Valenciennes. Crimson Poison Grouper.

Scorpæna brasiliensis Cuvier & Valenciennes, IV, 305, 1829.

179. *Scorpæna plumieri* Bloch. Cockade Lady; Poison Grouper.

Scorpæna plumieri Bloch, Nya Handl. Stockh., X, 234, 1789; Jordan & Gilbert, Synopsis, 680.

Two specimens 10 in. long. Head relatively much wider and supraocular flap much smaller than in a specimen $7\frac{1}{2}$ in. long from Havana, but agreeing otherwise in every detail of structure. Color, head very dark: body dark olive with two large black blotches or bands; one extending from spinous dorsal and the other from anterior half of soft dorsal; caudal pale olive, a black band at base and tip and one through middle; pectorals and ventrals variously mottled with different shades of olive, black and brown; anal barred and blotched with white, black and brown, and a little yellowish-olive

posteriorly; lower margin of gill opening and breast dark reddish-brown; belly pale.

180. *Scorpæna grandicornis* Cuvier & Valenciennes. Poison Grouper.

Scorpæna grandicornis Cuvier & Valenciennes, IV, 309, 1829.

TRIGLIDÆ.

181. *Prionotus rubio* Jordan. Red Gurnard; Couke.

Prionotus rubio Jordan, Proc. U. S. Nat. Mus., 1886, 50 (Havana).

CEPHALACANTHIDÆ.

182. *Cephalacanthus volitans* (Linnaeus).

Trigla volitans Linnaeus, Syst. Nat., Ed. X, 302 (Tropical Seas).

Cephalacanthus spinarella, Jordan & Gilbert, Synopsis, 738.

GOBIIDÆ.

183. *Philypnus dormitor* (Lacépède).

Gobiomorus dormitor Lacépède, Hist. Nat. Poiss., II, 599 (Central American Seas).

Eleotris dormitatrix, Günther, Cat., III, 119.

184. *Eleotris perniger* Cope.

Culius perniger Cope, Trans. Am. Phil. Soc., 1870, 473 (St. Martins).

185. *Dormitator maculatus* (Bloch).

Sciæna maculata Bloch, Ichthyologia, pl. 299, fig. 2, 1797; locality unknown.

Dormitator maculatus, Jordan & Gilbert, Synopsis, 632.

A single specimen about 4 in. long, nearly uniform black.

186. *Gobius soporator* Cuvier & Valenciennes.

Gobius soporator Cuvier & Valenciennes, XII, 56 (Martinique); Jordan & Gilbert, Synopsis, 634.

187. *Awaous tajasica* (Lichtenstein).

Gobius tajasica Lichtenstein, in Berl. Abhandl., 1822, p. 273 (Günther).

Gobius banana Günther, Cat., III, 59.

ECHENEIDIDÆ.

188. *Echeneis naucrates* (Linnaeus). Sucking Fish.

Echeneis naucrates Linnaeus, Syst. Nat., Ed. X, 261; Jordan & Gilbert, Synopsis, 416.

Several specimens. One 30 in. long is plain dark bluish above and lighter below.

189. *Remora remora* (Linnaeus).

Echeneis remora Linnaeus, Syst. Nat., Ed. X, 260, 1858 (Pelagico Indico); Jordan & Gilbert, Synopsis, 417.

MALACANTHIDÆ.**190. *Malacanthus plumieri* (Bloch).**

Coryphæna plumieri Bloch, plate 175, 1787 (Antilles).

Malacanthus plumieri, Günther, Cat., III, 359.

BLENNIIDÆ.**191. *Labrisomus nuchipinnis* (Quoy & Gaimard).**

Clinus nuchipinnis Quoy & Gaimard, Voy. Urania, Zool., 255; Jordan & Gilbert, Synopsis, 762.

PLEURONECTIDÆ.**192. *Platophrys lunatus* (Linnaeus).**

Pleuronectes lunatus Linnaeus, Syst. Nat., Ed. X, 269, 1758 (Bahamas, after Catesby).

Platophrys lunatus, Jordan & Goss, Flounders and Soles, 43.

193. *Platophrys maculifer* (Poey). Ringed Sole.

Pleuronectes maculiferus Poey, Mem., II, 316, 1860 (Cienfuegos).

Platophrys maculifer, Jordan & Goss, Pleuronectidæ, 43.

194. *Syacium micrurum* Ranzani.

Syacium micrurum Ranzani, Nov. Spec. Pisc. Diss. Sec., 1840, 20, pl. 5, (Brazil); Jordan & Goss, Flounders and Soles, 46.

The specimens here noted have not the eyes so nearly even as has the specimen from Bahia, with which they agree otherwise.

Family SOLEIDÆ.**195. *Achirus lineatus* (Linnaeus).**

Pleuronectes lineatus Linnaeus, Syst. Nat., Ed. X, 268, 1758.

Achirus lineatus, Jordan & Goss, Flounders and Soles, 88.

Eleven specimens, five females, four that seem to be males, and two seemingly immature females. Leaving out of account the latter two specimens, the males can be readily distinguished by the darker color, by the more anterior position of the upper eye, which is half or more than half of its diameter in front of lower, and by the wider gape to the mouth, which extends to below the middle of the lower eye. The females are light in color, the upper eye is anterior to the lower by less than half its diameter, and the angle of the mouth is under anterior portion of lower eye. The two other specimens whose sex could not be determined resemble the females; one is small and certainly immature, but the other is larger, and may be a male.

196. *Symphurus plagusia* (Linnaeus).

Pleuronectes plagusia Linnaeus, Syst. Nat., Ed. XII, 455, 1766 (Charleston?).

Symphurus plagusia, Jordan & Goss, Pleuronectidæ, 100.

OGCOCEPHALIDÆ.**197. *Ogcocephalus vespertilio* (Linnaeus). Fishing Frog.**

Lophius vespertilio Linnaeus, Syst. Nat., Ed. XII, 402.